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THE MEDICAL MANAGEMENT OF PREGNANCY.

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By the medical management of pregnancy we understand the care of the pregnant woman in all particulars, except such as may demand operation.

First in importance is the diagnosis of early pregnancy; it cannot be too clearly remembered that this is impossible from symptoms only; a vaginal examination is necessary for a positive diagnosis. The most important point which this examination will disclose will be the condition of the uterus; the enlargement of the womb, its shape, consistence, presence or absence of contractions are the important points to be recognized in examination. The enlargement of the uterus in pregnancy is often not symmetrical before the third or fourth month; that half of the womb in which the ovum lodges may be considerably more enlarged than the other; there will, however, be present some sign of the development of the lower uterine segment, and this is peculiar to pregnancy and is not counterfeited by other conditions.

To ascertain this the fingers are pressed gently but firmly into the uterus just above the cervix; this may be done either through the vagina on the anterior wall of the womb, or in the rectum on its posterior surface. If the lower uterine segment is forming the uterine tissue will yield at this point, and the body of the uterus will be felt bulging outward above the fingers. During the examination uterine contractions may be felt, and should this occur it would strengthen the diagnosis of pregnancy.

The other signs of less value are the softness of the cervix, the pulsating of the vessels, the darkened color of the tissues, and increased secretion; all of these may be present, however, without pregnancy.

While this examination is being made the position of the uterus should be determined; if it be sharply anteflexed and ill-developed the physician may expect nausea, more or less pronounced, as a complication of pregnancy; if the uterus be retroflexed and retroverted, attention must be given lest it becomes incarcerated and abortion or infection should develop. This examination should also disclose any marked abnormality in the patient's pelvis; pelvimetry will give more detailed information, but palpation is of especial value. Another advantage of vaginal examination in early pregnancy is the recognition of pelvic tumor or other abnormal condition of the pelvic organs.

Anterior displacement of the pregnant womb should be treated by causing the patient to abstain entirely from pressure by clothing upon the abdomen; while this is very difficult to accomplish it is of undoubted importance. Such pressure increases nausea and very much disturbs the general condition of the patient. Backward displacements of the womb require correction and the prolonged use of the knee-chest posture. To replace the womb the patient's bladder should first be thoroughly emptied, and she should then be put in the knee-chest posture; introducing one or two fingers into the vagina, the fundus should be pressed

upward, forward, and to the patient's right side; pressure should be intermittent, gentle, but persistent, and usually the physician will feel the fundus move slowly upward until it passes beyond his reach; the cervix should then be carried well backward, completing the replacement. If there is danger of its return, a retroversion rubber pessary should be fitted, having a soft posterior bar. If there is thickening or contraction of the tissues, wool tampons should be employed instead, and form an especially valuable method of treatment. These should be made in size appropriate for the patient's development, and should be sterilized by boiling in one-per-cent lysol. They should be introduced with the patient in the knee-chest posture, the posterior vaginal wall being thoroughly drawn upward by a Sims speculum; the tampon should be so placed as to raise the uterus and carry the cervix backward. Such a tampon may be safely retained for twenty-four to thirty-six hours, the patient taking a very gentle irrigation of one-per-cent lysol after removing the tampon. Three times weekly the tampon should be replaced. Cases of backward displacement in which the patient has no tampon or pessary should take the knee-chest posture, night and morning for ten or fifteen minutes, until the fourth or fifth month. In cases which do not yield to this treatment the womb must be replaced under ether and retained in position as already indicated.

When the physician is assured that the patient is pregnant and that the position of the womb is favorable for its normal development, attention should be directed to the patient's general hygiene. Here verbal directions are not to be trusted. A diet list, directions for bathing, exercise, avoidance of constipation, adjustment of clothing, hours of sleep and rest, and a description of those symptoms which should be reported, should be given to the patient by her physician.

In choosing the diet the patient's natural tendencies must be closely studied; while milk, fruit, and bread form an ideal diet for the pregnant woman, very few will accept it. We find it almost invariably necessary to cut down the amount of meat taken by a patient, substituting milk for it as far as possible, and frequently to cut off many indigestible dishes. Meat once daily is quite sufficient during pregnancy, while healthy women may take eggs or fish once daily. In using milk it may take the place of meat at luncheon, or if the patient cannot take much food it may be used especially during early pregnancy, about the middle of the forenoon, in the afternoon, and before retiring. It may be diluted with Apollinaris, Vichy, plain soda, mixed with lime-water, made into junket, buttermilk, cottage cheese, or taken with a little salt in each glass; usually a few biscuits should be taken with it.

All ripe fruits and vegetables in season are indicated; the most easily digested meats only should be chosen, and fish only attempted when absolutely fresh and sound. We are accustomed to exclude, if possible, from the diet of pregnant patients, heavy cheeses, nuts, pickles, pastry, candies, pork, veal, fried dishes, rich sauces and gravies, highly spiced foods, alcoholic beverages, and large quantities of strong tea and coffee.

Stimulants are not only not necessary in pregnancy, but almost invariably are distinctly harmful; if the patient is accustomed to tea and coffee, they should be taken in moderation only, freshly made and not strong. If the patient habitually uses wine or beer, these may be used in small quantity only; the heavy alcoholic beverages should be forbidden.

The use of water as a beverage is most important during pregnancy. Few patients who suffer with nausea in the early months are not benefited by the use of Vichy, Apollinaris, soda, or any other slightly aerated and pure water. Much water cannot be taken with meals, but in moderate quantities it should be used throughout the day and evening. In cases in which the kidneys are overburdened and the heart muscle is not strong, water should not be given in large quantities; with these patients it is safer to restrict the diet to milk, with other treatment appropriate to the condition. While we may restrict the diet of pregnant patients, a mistake must not be

made and insufficiently nourish them. They require abundant nourishing food, and ordinarily digest and assimilate it well.

The patient's bowels must be made to move sufficiently, daily, by a suitable preparation of cascara or compound licorice powder; enemas and salines for habitual use should be avoided. A selected diet and the proper use of water will do much to avoid constipation. The condition of the skin must be kept good by frequent baths and bathing; baths should be neither hot nor cold, and may be used in accordance with the patient's health. The shower bath should be avoided, but the sponge and tub bath should be used very freely. In summer surf bathing is dangerous because of the shock of the waves, but bathing in still sea water or fresh water from a beach, with gentle swimming, may be permitted. Exercise in walking or driving is of great importance; in suitable weather the patient should walk daily in the open air to the point of reasonable fatigue. Clothing should be suspended from the shoulders by suitable waists, side garters should be substituted for circular garters, clothing should be made thoroughly comfortable in accordance with the patient's habits, and chilling the surface of the body should be carefully avoided. Abundant sleep in well-ventilated rooms and rest as the patient's sensations indicate are also necessary. It must not be inferred that a patient because pregnant is to live an indolent and useless life; on the contrary regular activity of mind and body is most essential for the safety of the mother and the development of her unborn child. Those mental conditions which stimulate and animate and cheer are greatly needed. Those things which are beautiful and delightful cannot be brought too closely to the patient's attention.

The patient should be asked to avoid long and tedious journeys, the use of a motor car, driving over rough roads, sailing in rough water, lifting, straining, reaching high above the head, running a sewing-machine, and going up and down long flights of steep stairs. A word of especial caution is necessary regarding motoring: until motor cars run slowly and smoothly, without frequent accidents, they are dangerous for pregnant women; their use has brought about miscarriage, and is often exceedingly fatiguing to the patient.

The patient should be instructed to report to her physician all signs and symptoms of returning menstruation or vaginal hemorrhage, pain in the abdomen or back, obstinate nausea, disturbances of vision, headache, constipation, and swelling of the extremities or face.

After the tenth week of pregnancy the patient's nutrition will require especial attention to avoid toxemia. In estimating the patient's condition the examination of the urine is of secondary importance; of primary importance is the condition of the patient's nervous system as shown by the presence or absence of headache, increased pulse tension, abnormalities of the cerebral condition, and marked disturbances in the action of the secretory nerves. These symptoms can be appreciated only by personal examination of the patient; hence the physician must see his patient not infrequently during her pregnancy. The condition of the patient's digestion and assimilation may best be ascertained by the study of the tongue, number and character of the bowel movements, the condition of the appetite, and also the study of the urine; in the last we observe especially the specific gravity, the amount of nitrogenous waste which it contains, as indicated by urea or otherwise and by the microscope, the presence or absence of débris from the kidneys. It is almost impossible with private patients to obtain an accurate account of the amount of urine passed in twenty-four hours; this may also vary greatly while the patient remains in good health. In our observation fifty-nine ounces was the average of patients whose condition was under complete observation, on a general and not restricted diet.

The avoidance of toxemia is best accomplished by careful hygiene on the lines indicated: restriction of diet, proper use of water, and laxative or purgative medicines. In many cases patients require increased rest, while others must take additional exercise. Calomel taken in small doses for

ten days or two weeks is the most valuable drug in our acquaintance to increase the solid waste of the body. Frequent use of baths is also of great importance. In studying the metabolism of pregnant patients it must be remembered that their percentage of solid waste is frequently lowest about the seventh or eighth month, and that after that in healthy women it rises steadily until the completion of pregnancy. Just before labor the amount of solid waste in the urine is frequently higher than during any other period of gestation.

The growth of the fetus should engage the attention of the physician as pregnancy goes on. An effort should be made to recognize the completion of six months' gestation, if possible. The position of the uterus is fairly constant at the umbilicus at this time, and this affords a computation for the duration of pregnancy. The size of the fetus should again be estimated at the seventh, eighth, and ninth months, and unless descent and engagement occur the patient should be again examined from the ninth month to the termination of pregnancy.

The estimation of the time of confinement and the period of gestation is exceedingly difficult. The patient's history will help somewhat, if we ascertain whether menstruation ceased absolutely or whether there was a partial return of this function after a normal period; where menstruation ceases absolutely pregnancy probably occurred soon after the termination of the last menstrual period; where a normal period was succeeded by a partial menstruation, conception probably occurred just before the incomplete or altered period. By recognizing the sixth month, when the fundus is at the umbilicus, and the development of the fetus at successive months, the physician may trace its growth to the time when viability is assured and the child begins to show signs of adjusting itself to the mother's pelvis.

In attempting to estimate the duration of pregnancy, the physician must not forget that in some cases pregnancy is prolonged considerably beyond 280 days; this is not necessarily injurious to mother or child, provided the child is proportionate to the mother's pelvis. In primiparæ, the patient should be examined at the time when the fetus begins to descend in the upper pelvis. If this descent occurs and continues the pelvis evidently is of sufficient size to accommodate the child, and prolongation of pregnancy brings with it no especial danger. On several occasions we have seen pregnancies of 290 to 300 days terminate favorably to mother and child.

Between the seventh and eighth month a complete examination of the patient should be made to determine the pelvic size and position and presentation of the child, and if possible the position of the placenta, and thus to form some prognosis regarding labor. While external pelvimetry cannot exclusively be relied upon it gives information of great value and should not be neglected. Especial attention should be given to the oblique diameters of the pelvic brim, as in one of them the presenting part usually descends. By palpation and auscultation the position and presentation can usually be made out. Patient auscultation of the abdomen will reveal heart sounds and often the sounds characteristic of the location of the placenta. In some cases coils of the cord and partial occlusion can also be recognized by palpation. Should external pelvimetry give warning of pelvic abnormality, a thorough internal examination of the pelvis should be made and its true conjugate carefully measured. If abnormalities of moment are discovered it is well to inform the husband or other responsible relatives of the patient, and while not discouraging them, to say to them that it may be necessary to take unusual precautions at the time of labor. We have seen nothing but good results follow such a course, and believe it to be fairest to all concerned. This examination should also include the scrutiny of the breasts; the patient should be instructed to draw out the nipples, and an ointment containing boracic acid should be given for daily use. The epithelia of the nipples should be brought into the best possible condition for lactation.

The preparation of the patient for labor should consist in giving her a written

memorandum for antiseptics, dressings, and needed drugs; that which we are in the habit of using is as follows: Fifty tablets bichloride of mercury (1 to the pint equals 1 to 1000); lysol, 6 ounces; bichloride gauze, 5 yards in glass jar; borated cotton, 1 large box; sterile saturated solution boracic acid, 1 pint; 1 large, new fountain syringe; double rubber sheeting, 2 yards; 1 medium-sized soft catheter; 1 glass catheter; 2 stiff nail-brushes with wooden backs; 1 new medicine dropper; Squibb's fluid extract of ergot, 1 ounce; Squibb's ether for anesthesia, 2 half-pounds; brandy, 2 ounces; tincture green soap, 8 ounces; 1 box containing tubes aseptic ergot, Parke, Davis & Co.'s; 20 tablets each containing sulphate of strychnia, 1/40 grain.

We also give to the nurse the following memorandum, asking her to be responsible for those articles: Three good-sized basins; 3 good-sized pitchers; 6 sterile sheets; 2 dozen sterile towels; 1 dozen breast binders; 1 dozen abdominal binders; large package of dressings for external use; sterile cotton sponges.

It is well to give the nurse a simple sedative which can be employed if the pains are nagging during the first stage of labor and at night; bromides of sodium and ammonium answer this purpose well. The patient should be prepared for labor by a copious high enema, by thorough antiseptic preparation of the external genital organs, trimming away the hair closely; if the patient does not urinate satisfactorily, the catheter should be passed. In accordance with her strength she should be up and about during the first stage of labor, if it occurs during the day. The physician from his examination previously will know to which side of the pelvis the presenting part is directed; he should instruct the nurse to have the patient lie upon that side during active labor; thus in the first position the patient will lie upon her left side, her lower extremities flexed. In the second position she will lie upon her right side. The nurse should see to it that an abundance of clean, sterile linen, hot sterile water, and a suitable bed and tables are ready. The physician should instruct the nurse definitely when he wishes to be summoned. Circumstances may differ with various cases, and the physician may wish to see one patient so soon as she comes into labor, while another may safely go considerably longer. If a physician does much obstetric work, it is convenient to have several bags fitted with the necessary instruments and appliances for labor, including a sterile gown, gloves, and suit. In dealing with out-of-town patients such a bag may be sent by express several days in advance of labor, and thus save the physician the inconvenience of transporting it in a hurry.

THE HYGIENE AND MANAGEMENT OF PREGNANCY.

BY GEORGE M. BOYD, M.D.,
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While pregnancy is essentially a physiological condition, woman to-day, the product of civilization, is so far removed from her progenitor that to permit her to advance in pregnancy and labor without the intelligent guidance of a physician is to invite complications, sometimes far-reaching, and even ending in the death of both mother and infant. The midwife, the failure to appreciate the necessity of surgical cleanliness, and last, but not least, the superficial study of obstetric cases, are the factors that in the past have retarded the progress of midwifery. The last two decades have been epoch-making. Clean surgery and a closer study of the obstetric problem have reduced very materially the fetal and maternal mortality. The past century closed with our science placed upon a higher level than ever before in its history. At the present day obstetrics conserves the child's interest more than it ever did in the past. It makes us all-mindful of the fact that we have two lives at stake, and that we must not sacrifice the one to save the other.

In the twentieth century there is still much to accomplish. Let us hope that with the advance of civilization the midwife may

soon be replaced by the physician; or else that the evil may be in part remedied by compelling her to attend a full course in obstetric nursing: for no other than the physician has the right to assume the responsibility of an obstetric case. When one recalls the many changes that take place in the woman during pregnancy, and how ill-defined and how difficult to detect are the complications arising during this period, one is all the more impressed with the necessity of placing her under close observation. Unfortunate is the physician who is forced to practice obstetrics in a community in which, through the ignorance of the people and the carelessness of his predecessor, the course of pregnancy is neglected and his services are requested only at the onset of labor. Our results will not be what we should wish until there exists a better appreciation of the obstetrician; or I might reverse this and say, until we do better obstetrics. It remains for the recent graduate to carry on this work of education.

A woman should consult her physician as soon as pregnancy is suspected. Among the wealthier classes of the community this is customary, but women in the lower walks of life do not, as a rule, consult their physicians until the latter months of gestation. As the result of this delay many patients present themselves in an unhealthy condition. As it is essential for the woman to be in the very best condition to undergo the ordeal of labor, it is incumbent upon the obstetrician to inform his patient as to how she must live and as to any abnormal symptoms that may arise. To better carry this knowledge into action the patient should be given a printed card outlining the life she should lead.

The hygiene and management of pregnancy may be discussed briefly under the following headings: diet, the bowels, clothing, exercise, bathing, care of the breasts, observation of the urine, and preliminary examination.

Diet.—The diet during pregnancy should be highly nutritious and easily digested. It should contain an abundant supply of proteids and fats, and should consist of fresh meats, vegetables, fruits, and water. It must be remembered that it should be taken with a twofold purpose, the health of one being and the growth of another. Normally the appetite is increased after the cessation of the morning sickness. Three meals should be partaken of daily. Breakfast and the noonday meal are more important than that taken in the evening; at these two meals the appetite should be completely satisfied, while at supper the woman should eat sparingly. It is better that the chief meal should be taken early in the day than at the late dinner hour.

In patients who have previously given birth to very large children a restricted diet is advisable during the last two or three months. It has been pointed out by many that a diet poor in hydrocarbons and fats exerts a marked influence upon the weight of the infant. By so modifying and reducing the child's weight difficult labor or the induction of premature labor may be obviated.

Meigs has been very successful in the palliative treatment of the nausea and morning sickness of pregnancy. He has his patients take a light breakfast early in the morning, an hour or two before rising, a cup of coffee with a piece of toast being brought to the bedside at the earliest morning hour. After taking this breakfast the patient would again fall asleep.

The Underfed.—In women belonging to this class a condition exists that is sometimes due to ill health and sometimes to overwork. For such a woman a special diet is necessary. She must follow out such a course of feeding as will relieve the existing infirmity and also improve her physical condition, the improvement being noted chiefly in increase of weight. The ordinary diet should be supplemented by taking as much milk at a meal as can be readily digested. In some cases milk must be used exclusively, and its ingestion is best accomplished by taking a fixed amount at stated intervals, with the addition of lime-water or salt to make it more acceptable to the stomach. Wines and malt liquors, while not as a rule needed in healthy women, are of very great value to those in this class

who suffer from loss of appetite and feeble digestion.

The Overfed.—The majority of women during pregnancy belong to this class. They eat heartily at each meal, and sometimes between meals. They lead a sedentary life, and the result is that as gestation advances they become a burden to themselves. Eating too much causes digestive disturbances, and excessive weight has a decided effect in increasing the growth of the child. Convulsions may follow the overloading of the stomach with indigestible food. A case is reported in which a young expectant, in the eighth month, ate heartily of fruit-cake and preserved quinces. Two hours later she was taken with convulsions. An emetic was the remedy that in this case successfully relieved the trouble.

The Bowels.—It is very important to obviate any tendency to a sluggish condition of the bowels, as constipation, together with lack of exercise and inordinate eating, predisposes to the toxemia of pregnancy. Constipation is frequently a troublesome symptom in the latter months, owing to the pressure of the uterus on the intestines interfering with the normal peristaltic movements. When it exists care should be taken that the bowels move daily. This is best accomplished by the use of vegetable laxatives, such as cascara sagrada; or pills of aloin, belladonna, and strychnine may be used. The saline cathartics are not often indicated.

The Clothing.—The clothing should be sufficient to protect persons from cold. The corsets should be especially adapted to pregnancy, so as not to compress the nipples or breasts, or interfere with the growing uterus. The garters should not be worn so tight as to compress the vessels of the lower extremities. The clothing should be suspended, as far as possible, from the shoulders. When the abdomen is much relaxed from previous pregnancies, the multiparous patient will often derive a great deal of comfort from the use of an abdominal bandage. In the latter months of gestation, when there is swelling of the legs or a varicose condition of the veins, the legs should be bandaged or an elastic stocking should be worn.

Exercise.—The pregnant woman should live in the open air as much as possible, and should take exercise systematically. It is difficult to specify the exact amount of exercise that should be indulged in, but a safe rule to follow is to instruct the patient to desist as soon as she begins to feel fatigued. Violent exercise, such as dancing, horseback-riding, driving over rough roads, lifting heavy weights, and the like, should be forbidden. In the latter months of pregnancy long journeys should not be undertaken unless absolutely necessary; and travel by water must be absolutely prohibited, owing to the danger arising from seasickness.

Bathing.—Too much stress cannot be laid upon the importance of keeping all the emunctory organs in healthy condition, especially the skin, on account of its eliminating and respiratory function. The most efficient mode to secure this end is the habit of frequent bathing—that is to say, daily or two or three times a week, according to the custom of the individual. The water should be neither hot nor cold, as bathing in very hot or very cold water is dangerous. Seabathing should be indulged in only with moderation.

Care of the Breasts.—The mammary gland should not be compressed. The nipples require more particular attention; they should be washed daily with warm water, and in the last two months of gestation it is wise to bathe them daily with tincture of benzoin, tincture of arnica, or alcohol and water. By carrying out this treatment the nipple is rendered less sensitive, and therefore less liable to abrasion; and later, in nursing, the occurrence of fissures, with the danger of mammary infection, may be prevented. When the nipples are small and imperfectly developed a gentle traction daily is sometimes of marked benefit in lengthening them; but more than gentle traction may provoke uterine contraction. Little can be done to relieve the inverted nipple.

Observation of the Urine.—The urine should be examined carefully at regular intervals during pregnancy. The danger of

renal disturbance should be explained to the patient, and a positive assurance should be given her that this danger can be averted, if frequent and regular examinations of the urine are made. Chemical and microscopic examinations should be made at least once a month during the earlier months, and not less than once weekly during the last three months of pregnancy. Close observation and regulation of the function of the kidneys during gestation are of great importance, especially when the toxemia of pregnancy is suspected. The presence of albumin, even if in slight quantity, should always be looked upon with suspicion. In addition to the test for albumin, the quantity of urine voided in twenty-four hours and the quantity of urinary solids, especially urea, should be estimated. The patient should be impressed with the importance of reporting to the physician the following symptoms, should they arise: a scanty flow of urine, persistent headache, persistent constipation, and swelling of the feet.

Preliminary Examination.—Not later than the two hundred and fiftieth day of gestation a careful examination should be made of the pregnant patient: first, for the purpose of verifying the diagnosis of pregnancy; and next, to determine the size and shape of the pelvis, and the presentation and position of the fetus.

The examination can usually be made more conveniently at the home of the patient than at the office of the physician. She should be placed upon a hard mattress in the horizontal decubitus. It is not necessary to expose the abdomen. The skin should be covered with only one thickness of newly laundered linen. At this examination the general condition should be carefully noted; and particular attention should be given to the measurements of the pelvis, as well as to the position of the fetus.

After having verified the diagnosis of pregnancy, it is well to make at least three external measurements of the pelvis, showing the distance between the iliac spines and between the iliac crests, together with the external conjugate measurement. If these measurements are found to be nearly normal, no internal measurements are necessary; and this statement applies with particular force to the multipara. If, however, the pelvis seems small and the external conjugate measurement is much below the normal, say 18 centimeters, an internal examination should be made. If the external conjugate measures less than 16 centimeters (6½ inches), shortening of the true conjugate is certain, and is likely to be considerable; if from 16 to 18 centimeters, shortening is extremely probable; from 18 to 20, the chances are even; from 20 to 21, shortening is possible; and above 21, contraction in this direction may safely be excluded.

After measuring the pelvis, one should carefully examine the abdomen. The presentation and the position of the child should be determined by external palpation, and the existence of any abnormality noted. If the head is not engaged and is movable above the brim of the pelvis, an internal examination should always be made.

Failure to make this examination often leads to serious consequences. The importance of studying pregnancy-patients before labor, and not taking it for granted that those whose previous labors have been normal will have no difficulty in subsequent ones, was impressed upon me by a case that I saw in consultation some years ago. The woman's physician had delivered her three times without difficulty; but the fourth labor, which he expected to be as easy as the others, was complicated with a disease of intra-uterine life, hydrocephalus. The diagnosis of this was not made until the patient had become greatly exhausted, and the result was fatal.

Another case of interest in this connection was that of a woman who presented herself at the clinic of the Philadelphia Lying-in Charity. On examination it was found that she was pregnant for the third time, and that the fetal ovoid was in an oblique position, the head being in the left iliac fossa. Interference being necessary, she was sent to the ward and put to bed, and immediate attempts were made to turn the ovoid by external version. This alteration was easily made, and a lateral support with

compresses was adjusted so as to hold the head at the pelvic brim until the onset of labor, which fortunately soon began.

If one makes a careful examination of the patient and practices obstetric palpation, an internal examination will seldom be necessary before the onset of labor. It will usually be possible to make a diagnosis of the presentation of the ovoid, and with the recognition of a malposition to correct the trouble before labor commences. When abnormal conditions are recognized at the preliminary examination, it is incumbent upon the obstetrician to inform some responsible member of the family of their existence.

Should a patient absolutely refuse to submit to this examination, the physician had better refuse to attend the case; but the writer has never encountered serious objections to it on the part of the patient. By exercising a little tact one can, in the majority of cases, overcome any such objections. One should carefully explain the importance of the knowledge that will be gained through the examination, and the fact that in all likelihood it will enable one to prognosticate a comparatively easy and safe delivery; and when such a result follows the examination, the patient always feels amply repaid for any inconvenience that may have been occasioned her by it.

Unless one adheres to the routine above described each case will remain to the end a mysterious uncertainty. This uncertainty, rather than the irregularity of the work, depriving one of sleep and interfering with one's office hours, accounts, I think, for the dislike of obstetrics felt by some of our present-day practitioners.

THE MANAGEMENT OF PREGNANCY.

BY RICHARD C. NORRIS, M.D.,

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The general practitioner usually receives such meager compensation for his maternity work that any extra effort is burdensome to him. Observing so many cases without serious complications he can see little motive for urging his patients to consult him early in pregnancy for that supervision the value of which the specialist in the larger communities has learned to appreciate.

Not infrequently such supervision can prevent a miscarriage; retard or arrest an insidious tuberculosis; avoid a fatal eclampsia; or save an overtaxed heart and prevent it from being permanently crippled. Pregnancy complicated by tumor or flattened pelvis can be discovered, and with this foreknowledge a safe labor will be possible. A normal labor free from parturient and postpartum accidents is often obtained by fortifying the patient, during her pregnancy, against the demands made upon her vital energy—demands as inexorable as any the physician ever observes.

Women should be taught to seek their doctors early in pregnancy. After the second missed period an office consultation should be arranged for, a careful history should be taken, and an examination should be made. Diseases of childhood that may bear relation to kidney or cardiac disease, as scarlet fever, diphtheria, rheumatic fever, or their sequels, are to be noted. Anemia, tuberculosis, syphilis, gonorrheal or other vaginal discharge should tactfully be investigated. The type and date of the last menstruation, the probable date of conception if known, in multiparæ the history of previous labors and lying-in periods, should carefully be noted. When the value of an early pelvic examination is made known to the patient there will be little or no opposition to it. It should be made to confirm the diagnosis of pregnancy and to detect any pelvic disorder that might interfere with its progress. Pathologic anteflexion, retroversion, extensive laceration with erosion or retention cysts of the cervix, fibroid or ovarian tumors, ectopic gestation or tubal inflammation are to be excluded. Appendicitis antedating or complicating pregnancy

is distinctly more dangerous, and early surgical treatment is more urgently demanded than at other times. During the examination deep pressure of two fingers toward the sacral promontory will recognize flattening of the pelvis.

Retroversion should at once be corrected and the womb held in place by a pessary until the third month has passed. When the enlarged uterus is caught behind the sacral prominence its dislodgment may be so difficult that retroversion with adhesion may be suspected. The knee-chest posture and traction on the cervix with a tenaculum, the bladder having been emptied, are often necessary to obtain reposition. Incarceration will usually be associated with marked bladder disturbance and contraindicates violent manipulations. In very rare cases an anesthetic (ethyl chloride or chloroform) may be required.

Pathologic anteflexion or extensive laceration of the cervix is prone to cause abortion, which may be avoided by rest in bed or on a couch, at the menstrual epochs, during the earlier months of pregnancy. Lacerations with erosions and free discharge should be treated with applications through a speculum. I have found nothing better than ten- to twenty-per-cent solutions of argyrol, puncturing the cysts before the application is made. Glycerin tampons are best avoided; they carry some risk of inducing abortion.

A quiescent and hitherto undetected tumor must be clearly diagnosticated. If ovarian, it should always be removed, and at the earliest possible period of pregnancy. The history of neglected ovarian tumors of any size complicating pregnancy is a history of disaster; of operation for removal during pregnancy it is brilliant if done before the fourth month. Of 720 cases not operated upon the maternal mortality was 21 per cent; the fetal mortality 30 per cent. Of 299 ovariotomies during pregnancy the maternal mortality was 3.3 per cent, and when no complications existed at the time of operation, pregnancy was interrupted in only 11 per cent.[1]

[1]McKerron: Pregnancy, Labour, and Child-bed, with Ovarian Tumor. London, 1903.

When appendicitis has existed prior to pregnancy, a recurrent attack is usual and is liable to be grave, perforation and abscess having occurred in 50 per cent of such cases.[2] Fibroid tumors on the contrary rarely interfere with pregnancy or labor, but they require watching throughout the pregnancy and after delivery. Only when situated in the supravaginal cervix and clearly an obstruction to labor, or when inflamed or producing serious pressure symptoms, is operation indicated. Among 3000 deliveries under my care at the Preston Retreat fibroids complicating labor have never produced serious obstruction. Several times I have been ready to do a Cæsarian section, but each time the tumor was drawn out of the way during the progress of labor. Their greatest danger is of necrosis and infection during the puerperium. Within the month, however, I have delivered at term a patient from whom I removed a large obstructing fibroid by myomectomy at the fourth month of pregnancy.

The early examination not infrequently detects tubal pregnancy before rupture. A doubtful diagnosis will justify an exploratory operation. Having excluded any complication in the pelvic organs the patient should then receive verbal or, better, printed directions as to diet, rest and exercise, and other details of her daily life in order to place her under the best possible hygienic environment. Plain, nourishing food, an abundance of fruit and of water, milk between meals to lessen the appetite for an undue amount of red meats, at least eight hours' sleep at night, with an afternoon "siesta" for the irritable neurasthenic, are useful hygienic rules to enforce. The cark and care of the housewife should be relieved by outdoor exercise, walking or driving, and in the earlier months occasional diversion and amusement should be suggested. The wide-spread use of the motor car among well-to-do people has brought up the question of the dangers of this form of outing for a pregnant woman. Good roads, an easy pace, short, non-fatiguing rides in a car equipped with comfortable springs are conditions permitting the motor car to

[2]Myer: *American Journal of Obstetrics*, March, 1906.

women who have no habit of or predisposition to miscarriages. Exposure to very cold weather and riding during the menstrual epochs are always prohibited.

Advice as to bathing requires no change from the patient's habit—cold or warm baths, as has been her custom. Surf baths are likely to cause abortion.

Restriction of sexual life should be suggested, especially at the menstrual epochs, and at other times it may be regulated in accordance with the patient's desires or its ill effect, as shown in excessive nausea or other irritations of the nervous system. It is a good rule to instruct the patient to mark the days on her calender when her menstrual periods would occur, and to enjoin rest and quiet during those periods throughout the entire pregnancy.

A few words are desirable as to the dangers of constricting corsets and garters and of high-heeled shoes. Multiparæ find great comfort from a lightweight abdominal supporter, so applied as to lift the growing uterus without compressing it against the great abdominal vessels and the ureters. The breasts should be free from compression, and during the last month of pregnancy the nipples should be drawn out daily if retracted. To prepare them for the traumatism of lactation they should be cleansed with bland soap and water and touched with sweet oil at the morning toilet. At night a preparation containing an ounce each of tannin, glycerole, and water should be applied, the night-dress being protected from stain by a clean piece of soft linen.

Perhaps the most important instruction to be given at this first visit is the necessity of avoiding constipation and promoting activity of the liver function. The latter-day pathology of pregnancy gives first place to toxemia and to the liver function an important prophylaxis. It is my rule to direct that throughout a week of each month the following pill be taken at bedtime, one or more as may be required:

℞ Podophylli, gr. 1/24;
Pulv. ipecac., gr. 1/12;
Hydrarg. chlorid. mit.,
Euonymini, āā gr. ⅛;
Ext. rhei, gr. j.

And during the remaining three weeks of each month a laxative pill of aloin, belladonna, strychnine, and cascara, alternating the latter at times with Hunyadi, Apenta, or other saline mineral water. The occurrence of "bilious" attacks should be reported to the physician, and with toxemia in mind he visits his patient to critically study her for the various manifestations of toxemia, whether in the skin, the gastrohepatic, nervous, urinary, or circulatory systems.

Urinalyses.—Space is not at hand to discuss in detail the varied and conflicting conclusions as to the significance and practical importance of critical examinations of the urine of pregnant women. For our present purpose it will suffice to state concisely the practical rules I follow in my daily routine work: A twenty-four-hour specimen is collected once a month until the ninth month, and thereafter every ten days. The quantity voided is noted, and the following examination made: The specific gravity; percentage of urea; presence and quantity (by volume) of albumin; the character and number of casts. My case-books—private and hospital patients—show albumin in small quantity in 8 per cent of the cases. In hospital patients the proportion is a trifle higher—12 to 15 per cent—upon admission (at the ninth month), the proportion falling to 8 per cent after free daily purgation and the good but simple food of the hospital dietary. The presence of albumin in small quantity without casts is not of grave significance. Purges and a diet largely of milk will usually cause it to disappear. Urea estimations are no longer regarded as the most practical index of impending toxemia, since the percentage may have the widest variations within the limit of apparent health. They do not tell us the patient's intake of nitrogen, nor the amount given to the growing fetus, nor of the formation of the precedents of urea which are evidences of disturbed metabolism. When, however, the urea percentage is persistently low the constitutional signs of toxemia are looked for; and when nausea, a coated tongue, headache, constipation or diarrhea, increased arterial tension, edema uninflu-

enced by posture, and nervous irritability are associated with diminished urea excretion, it is then a danger-signal of great value. Urinalyses that estimate the proportion of the various precedents of urea, as ammonia, acetone, and other amide substances, by means of which acid intoxication and disturbed metabolism are determined, have thus far not reached a practical value so far as concerns the diagnosis of pregnancy toxemia.

Mild Affections of Pregnancy.—There are a few mild disorders of pregnancy about which and their treatment the patient should be informed. A troublesome vaginal discharge should always receive treatment. When a gonorrheal origin is suspected a cover-slip preparation is readily stained and the diagnosis thus made certain. For its treatment 25-per-cent solution of argyrol in gelatin suppositories and one-per-cent douches have given me satisfactory results. Thorough disinfection of the vagina when labor occurs, the avoidance of vaginal examinations, and the Credé prophylaxis of ophthalmia are routinely employed. For non-specific leucorrhea and its associated pruritus, douches, gently given, the syringe-bag slightly elevated above the level of the vagina, are indicated (lysol or zinc sulphate, one drachm to the quart). For the pruritus, after the douche a vaginal suppository is used, containing picric acid gr. j; extract of hydrastis, zinc sulphocarbolate, alum, of each gr. ij; and boric acid, gr. x.

When the usual local treatment of inflamed hemorrhoids fails to give relief, the clot in an external pile may be turned out under local anesthesia, and even internal hemorrhoids, if seriously infected, may be removed with safety during pregnancy.

Keeping in touch with the patient's progress the period finally arrives for the examination preliminary to labor. Two weeks before term a visit is made, the patient preparing for it by resting in bed loosely clad. Her general condition, circulatory system, and gastrointestinal functions should be investigated. The abdomen is palpated to determine the position and presentation of the fetus, and whether descent of the head into the pelvic cavity has occurred. Pelvic measurements should be recorded of all primigravidæ and of multiparæ whose histories indicate difficult or obstructed labors. When the head has entered the pelvic cavity, pelvic measurements may be omitted. In a doubtful case a vaginal examination should be made. Occiput posterior positions, with the head movable above the pelvic brim, in primigravidæ near term, very commonly cause difficult high forceps deliveries. In such cases the prevention of unduly prolonged pregnancy by the induction of labor at term and efforts to secure ample flexion of the head to insure prompt engagement I have always found desirable. The practitioner who has no skill in pelvimetry can at least learn the reach of his index and middle fingers, and when the sacral promontory is readily reached he will at once recognize a flattened pelvis. At this visit also the condition of the nipples is observed, a daily laxative is prescribed, the patient is reassured and encouraged, and the nurse's preparation of the armamentarium is explained. The following is a printed list given to the patient at her first office consultation; she is instructed to have this armamentarium in readiness after the seventh month of pregnancy:

FOR THE MOTHER.

Have ready towels, ether (2 quarter-pound cans); alcohol (eight ounces); hot water; a bottle of antiseptic tablets (corrosive sublimate); a new nail-brush; a fountain syringe; bedpan ("Perfection" bed and douche pan); new, soft-rubber catheter; one old sheet, linen or muslin (for binder); a one-pound package of salicylated cotton; a one-pound package plain sterilized cotton; fifteen yards of carbolized gauze; a one-yard package of absorbent lint; two medium size white agate basins; one pair surgeon's rubber gloves, size No. 7½; four yards of nursery cloth.

The last is to be boiled for half an hour in clothes boiler, dried thoroughly, pinned up in a clean sheet, and put away out of the dust. A mackintosh or rubber cloth is necessary to protect the mattress; two yards of rubber cloth, one yard wide, is sufficient. Prescription No. 1 is to be procured about four weeks before expected confinement. It is to be applied to the nipples at night, with absorbent cotton, the clothing to be protected from staining by a piece of clean linen.

Prescription No. 2 is for the baby (dressing for cord). (Acid. salicylici, gr. xx; pulv. amyli, ʒj. M. Sig.: Navel dressing for the baby.)

Baby Clothes.

Four to six dozen diapers.
Four to six pairs knit (woolen) socks.
Three to four shirts (woolen).
Four flannel night skirts.
Four flannel day skirts.
Four to six white day skirts. (All skirts to be made with waists instead of bands.)
Six to ten slips.
Six to ten dresses.
Material for four or five flannel bands (45- to 50-cent flannel).
Soft pillow (good size, 14x18 inches).
Soft pillow covers.
Knit wrapping blankets.
Sacques, wrappers, bibs, caps, blankets, veils, etc.

Baby's Basket.

Large and small safety-pins.
Talcum powder (box and puff).
Fine, soft sponge.
Soft brush (for hair).
Castile soap.
Cold cream.
Alcohol for rubbing child.
Blunt scissors for nails, etc.
Old linen for cleaning mouth.
Soft towels for bath.
Bath blanket.
Wooden forms for drying socks.
Baby bath tub.
Baby scales (if desired).

THE MANAGEMENT OF NORMAL PREGNANCY.

BY BARTON C. HIRST, M.D.,
Professor of Obstetrics, University of Pennsylvania.

A woman expecting confinement should apply to the physician who is to attend her no later than the third month of pregnancy. She receives at the first visit the following routine and advice: The chief danger she runs in pregnancy is from toxemia, and the most important contributing cause of that condition is overtaxation of the kidneys and liver with imperfect elimination. Therefore she should be prudent about exposure to cold, wet feet, sitting in a draft, and insufficient underclothing. The food should be of such a character as not to tax the kidneys and liver, namely, no excessive indulgence of any kind; no excess of sweets; meat but once a day, and red meat not oftener than three times a week. The bowels must be regulated; the best routine prescription is the pill of aloin, belladonna, cascara, and strychnine; as substitutes, a mixture of syrup of figs and cascara, phosphate of soda, Carlsbad water, or Lady Webster's pills may be used.

Specimen of urine should be sent to the physician once in two weeks till the last month, then once a week. Examinations for albumin, specific gravity, and sugar should be made routinely. If there is any abnormality in the urine or any symptom in the patient, such as headache, defective vision, rapid pulse, edema, foul tongue, or dyspepsia, a microscopic examination of a centrifuged specimen, an estimation of the urea output, and, if possible, a determination of the nitrogen partition should be made.

To preserve the teeth, which are prone to decay in pregnancy, the patient should be instructed to use milk of magnesia as a mouth-wash morning and evening, and to take a course of the syrup of the lactophosphate of lime, two drachms three times a day, for two weeks at a time off and on during the whole of gestation.

Dentists attach the greatest importance to the acid secretions of the mouth as a cause of caries in the teeth, and therefore believe that the antacid mouth-wash is the most essential remedy. The patient should report in the doctor's office about once a month, and at the last visit, a month before labor, a routine pelvic and abdominal examination should be made to determine pelvic and fetal size, fetal position, and any abnormality that might obstruct labor.

In regard to physical effort the patient should be cautioned in the early months against overexertion, prolonged standing on the feet, violent exercise of any kind, a sudden jolt or jar, and movements of the body that strain the abdomen, namely, lifting heavy weights or raising the arms above the head to exert muscular effort, as in opening a window or lifting a weight down from a closet shelf. Later in pregnancy a short, leisurely walk daily in the open air

should be recommended if the weather is not inclement. Two weeks before labor it is an advantage to give one-thirtieth of a grain of strychnine three times a day. It increases the vigor of the labor pains when labor begins.

As there are a number of small details for the patient to remember, and as there are a number of things to provide, a printed list such as is appended below should be handed the patient:

FOR THE MOTHER.

Send a specimen of urine (mixed night and morning), about four ounces, every two weeks until the last month, then every week. Report at once scanty urination, bad headache, swelling of the feet or face.

Have ready for the labor: Towels, ether (one-half pound); brandy (two ounces); vinegar (four ounces); four ounces tincture of green soap; a bottle of antiseptic tablets (corrosive sublimate); a large, coarse, new sponge; a skein of bobbin; a fountain syringe; bedpan; new, soft-rubber catheter; a small package of absorbent cotton; a one-ounce bottle of carbolized vaselin; two yards unbleached muslin (for binder); a one-pound package of salicylated cotton; five yards of carbolized gauze; eight yards of nursery cloth.

The last is to be boiled for half an hour in clothes boiler, dried thoroughly, pinned up in a clean sheet, and put away out of the dust. A mackintosh or rubber cloth is necessary to protect the mattress; two yards of rubber cloth, one yard wide, is sufficient. Prescription No. 1 (Glycerole of tannin, aq., āā f℥jss; ol. rosæ, gtt. ij; apply externally as directed to the nipples) is to be procured about four weeks before expected confinement. It is to be applied to the nipples, night and morning, with absorbent cotton. Prescription No. 2 (ergot) is to be gotten about a week beforehand and kept in readiness.

Baby Clothes.

Four to six dozen diapers.
Four to six pairs knit (woolen) socks.
Three to four shirts (woolen).
Four flannel night skirts.
Four flannel day skirts.
Four to six white day skirts. (All skirts to be made with waists instead of bands.)
Six to ten slips.
Six to ten dresses.
Material for four to five flannel bands (45- to 50-cent flannel).
Soft pillow (good size, 14x18 inches).
Soft pillow covers.
Knit wrapping blankets.
Sacques, wrappers, bibs, caps, blankets, veils, etc.

Baby's Basket.

Large and small safety-pins.
Talcum powder (box and puff).
Fine, soft sponge.
Soft brush (for hair).
Castile soap.
Cold cream.
Alcohol for rubbing child.
Blunt scissors for nails, etc.
Old linen for cleaning mouth.
Soft towels for bath.
Bath blanket.
Wooden forms for drying socks.

If the patient is willing to incur the additional expense, everything needed in the labor may be procured in a box, each article sterilized and ready for immediate use:

"VAN HORN" OBSTETRICAL OUTFIT NO. 4,
As prepared for Dr. Barton C. Hirst, Philadelphia.

Ten yards sterilized gauze.
Two sterilized bed pads (30 inches square).
Two sterilized mull binders (18 inches wide).
Six sterilized towels.
Stocking drawers, sterilized.
Ten yards sterilized gauze.
Five yards carbolized gauze.
One pound package salicylated cotton.
One pound sterilized absorbent cotton (½ lbs.).
Rubber sheet 1 yard by 1½ yards, sterilized.
Rubber sheet 1½ yards by 2 yards, sterilized.
Two tubes sterilized petrolatum.
One tube K-Y lubricating jelly.
Tincture green soap.
Fluid extract ergot.
100 grammes chloroform (Squibb's).
100 grammes ether.
Boric acid, powdered.
Bichloride tablets.
Talcum powder.
Four-quart sterilized douche-bag with glass nozzle.
Douche pan, sterilized.
Two agate basins, sterilized.
Bath thermometer.
Sterilized nail-brush.
Safety-pins.
Sterilized tape.
Sterilized soft-rubber catheter.
Sterilized glass catheter.
One pair sterilized rubber gloves, No. 7½.

These materials being cleansed and sterilized are ready for use at any time.

This complete outfit is packed in a neat box, thus enabling the contents to be kept intact until needed.

At the patient's first visit to the physician she should be given a list of about a half-dozen competent, reliable nurses, to choose from the number the one whose personality she likes the best.

ARTIFICIAL FEEDING OF INFANTS IN PRIVATE PRACTICE.[1]

BY M. HOWARD FUSSELL, M.D.,
Assistant Professor of Medicine in the University of Pennsylvania.

My experience as a general practitioner has been long enough for me to have tested the various methods of infant feeding. Until Rotch brought the system of modifying milk to a scientific basis I, in common with most doctors, was hopelessly changing from one mixture of milk and cream to another, and from one proprietary food to another, chosing the one which was most advertised. The result was hopeless confusion and much sickness among my artificially fed babies.

The use of modified milk on a fixed and scientific basis has proven most satisfactory and convenient.

When I first read Rotch's books and his formulæ the whole subject seemed a mere mass of figures to me. As a matter of fact, when the principles are thoroughly grasped, modification of milk is a simple matter when we have at hand the text-books for guides. I have used the milk laboratories to a certain extent, but they are too expensive for the ordinary individual, unless the person chances to live in close proximity to them, and home modification is perfectly practicable and satisfactory in the great majority of cases.

In regard to the advantages of modified cow's milk over the many patent foods, it is a well-known fact that in a considerable percentage of cases which have been fed upon artificial foods, and apparently successfully fed, scurvy and rickets are pretty sure to supervene. So far as I know, this never takes place when some mixture of fresh milk is used.

Some years ago I reported three cases of infantile scurvy following the use of a well-known proprietary food.

It may be interesting to digress a moment and state these facts. The cases were reported April 8, 1902. Before being read the editor of a well-known and extensively read journal wrote me asking for the privilege of publishing the paper. After the meeting the manuscript was sent to the journal. It was promptly returned to me by the editor with a polite note saying the publishers would not print it because it contained the name of the artificial food, and that the manufacturers of this particular food were large advertisers in the journal. For business reasons, therefore, it could not be accepted. The paper is still in my pigeonhole.

As illustrating the point I have made of scurvy following the use of artificial foods which have been used, with apparent success, I will quote one of these cases in abstract:

Baby M., female, aged thirteen months; weighed five pounds at birth. The mother nursed the infant but a very short time because her milk ceased to nourish the child. The child was put upon a cream and milk mixture. After many trials a formula was found upon which the child slowly improved. When eight months old she weighed 12 pounds. At this time the mother and child went on a visit to a neighboring town and did not return to my care until September, 1901. When a year old the baby weighed 14 pounds and was dull and listless. While away from home the patient ceased to improve upon the milk formula it was using; a very able practitioner was consulted, and a mixture of condensed milk and an artificial food was prescribed. Upon this mixture the patient seemed to thrive. When the family returned I was informed of what had taken place, and was shown the apparently well-nourished child as an evidence of the superiority of artificial foods over milk and cream food.

One month after the patient came under my care the second time, and while it was still taking the artificial food, it was noticed that there was a disinclination to use the left leg. The child would lie on its back, move both arms and the right leg, but when the left leg was moved it would cry out with pain. At first the evident pain was thought to be due to a twist that was known to have been received. Soon, however, neither leg would be moved voluntarily; it was then noticed that the skin of the face was very edematous; both tibiæ became much swollen and extremely tender to the touch; the gums were normal, but there were no teeth. The food was at once changed to a laboratory mixture of milk and cream. The immediate improvement in the child's condition was little less than marvelous; within three days the legs could be handled without the

[1]Read before the Philadelphia Pediatric Society, Nov. 13, 1906.

child giving any signs of pain. At first there was a rapid loss of weight owing to the disappearance of the edema; within a week, however, the child began to improve, and she now weighs more than at any time in her life, stands on her feet for the first time in her life, and is altogether an entirely different individual.

Another case came under my care last evening. A child twenty months old was brought into my office with the history that she was the surviving one of twins. Soon after the birth of the twins the mother's supply of milk failed. The children were fed on condensed milk and oatmeal. Both children suffered during the summer with enterocolitis; the one died. This surviving one has had diarrhea most of her life, has never crept nor walked, is pale, ill nourished, has a slight fever. The fontanel is open, there is beading at the junction of the costal cartilages and the ribs, and enlargement of the wrist and ankle joints. It is a typical case of rickets. These are but two instances of many of the kind which have come to my notice. Many such occurred in my own practice before I gained wisdom and took the trouble to take care of the children.

The great reason why we are unsuccessful in feeding children is because it is such an easy matter to say to the parents: Feed the child on condensed milk; use the formula directed upon the can. This failing we are prone to try this food and that food until the child either drifts into the hands of another practitioner or dies, or mayhap by good fortune begin to improve, often later to come to us with scurvy or rickets. And it takes considerable time and trouble to teach how to modify milk.

Another reason, and perhaps quite as potent as the doctor's neglect, is the fact that neighbors are constantly advising the mothers to use this or that food when the child is ill fed, in spite of the doctor's direction.

The reason why modification of milk does not succeed when a consultant advises its use is because we doctors do not understand its principles, and one or two visits by the consultant are useless, unless we take pains to learn and apply these principles to the case in hand. I advise all doctors to take down their Rotch and their Holt, take a day off, grind the principles into their minds and follow them. Success and great comfort both for themselves and the families they treat will surely follow.

I have no doubt that my method of using this most helpful adjunct may not be all which a skilled pediatrist would wish, but it works and works well, and I have relatively little trouble.

In the beginning I write or have copied these directions for home modification:

First.—Select a good dairyman who will give you fresh, pure milk.

Second.—Buy a Chapin milk dipper.

Third.—Have the milk delivered in a clean quart bottle.

Fourth.—Allow the bottle to stand on ice six hours.

Fifth.—Take eight dipperfuls from the top of the quart of milk. Use these eight dipperfuls as *cream*. Use the remainder in the bottle as *milk*. I then leave with the mother a written formula which I deem fitted for the particular case.

These directions are gone over carefully; if need be, a mixture is made by myself in the presence of the mother, for simple as the procedure is to me, and as it in reality is, a demonstration is much more efficacious than is the mere telling or reading of directions.

Now, as to my own part in remembering the formulæ. I do not attempt to memorize them; I always carry with me cards upon which I have copied three sets of directions:

1. A card holding the proper amount of food and the proper intervals for given ages:

Age.	Interval. Hours.	No. feedings in 24 hours.	No. feedings in night.	Amount each feeding. Ounces.	Total amount. Ounces.
1 week	2	10	1	1	10
2 weeks	2	10	1	1½	15
4 weeks	2	9	1	2½	22½
6 weeks	2½	8	1	3	24
8 weeks	2½	8	1	3½	28
3 months	2½	7	0	4	28
4 months	2½	7	0	4½	31½
5 months	3	6	0	5½	33
6 months	3	6	0	5½	34½
7 months	3	6	0	6¼	37½
8 months	3	6	0	7	42
9 months	3	6	0	7	42
10 months	3	5	0	8½	42½
11 months	3	5	0	8¾	43¾
12 months	3	5	0	9	45

2. A card giving the proper proportion of sugar, proteids, and fats for given ages:

Age.	Percentage of fat.	Percentage of sugar.	Percentage of proteids.
24 to 36 hours	...	5	....
First week	2	5	.75
Second week	2.5	6	1
Third week	3	6	1
4 to 6 weeks	3.5	6.5	1
6 to 8 weeks	3.5	6.5	1.5
2 to 4 months	4	7	1.5
4 to 8 months	4	7	2
8 to 9 months	4	7	2.5
9 to 10 months	4	7	3
10 to 10½ months	4	5	3.25
10½ to 11 months	4	4.5	3.5
11 to 11½ months	Unmodified cow's milk.		

3. A card showing the proper manner of manufacturing at home given percentages of sugar, proteids, and fats:

Percentage of fat.	Percentage of sugar.	Percentage of proteids.	Cream, 12 per cent.	Milk, fat free.	Lime water.	Boiled water.	Milk sugar.
.5	5	2	3/4	9 1/4	1	8 3/4	1/4
.75	6	1	1 1/4	8 3/4	1	14	1/4
1	5	.75	1 1/2	8 1/2	1	15	1/2
1.5	4	.5	2 1/2	7 1/4	1	16 1/4	1/2
2	5	.75	3	7	1	15	1
2	5.5	1	3	8 1/4	1	13 1/2	1
2.5	6	1	4	7 1/2	1	14	1
3	6	.5	X	X	X	X	X
3	6	.75	5	..	1	14	1
3	6	1	4 1/4	5 1/4	1	13 1/2	1
3.5	6.5	1	5 1/2		1	13 1/2	1
3.5	6.5	1.5	5 1/2	2 1/4	1	11	1
3	7	1	4 1/2	3 1/4	1	13 1/2	1
3	7	1.5	4 1/2	3 1/4	1	11	1
3	7	2	4 1/2	5 1/4	1	8 1/2	1
3	7	1	X	X	X	X	X
4	7	1.5	6 1/4	1 1/2	1	11	1
4	7	2	6 1/4	4 1/4	1	8 1/2	2 1/2
4	7	2.5	6 1/4	6 1/4	1	6	2
4	7	3	6 1/4	9 1/4	1	3 1/2	2
4	6	3	6 1/4	9 1/4	1	3 1/2	2
4	5	3	6 1/4	9 1/4	1	3 1/2	1 3/4
4	5	3.5	6 1/4	11 1/4	1	1	1/2

X.—Impossible mixture with this cream and milk.

These cards I have copied from Rotch and Holt. I believe the last is the original work of our fellow associate, Dr. Westcott.

Necessarily these are hard and fast rules, and will not answer in all cases, though they will in the majority of instances. When I find that the particular formula which I have selected does not agree, if the baby cries, if it vomits, if it has diarrhea, I change my formula, giving that which my experience has taught me is best.

I am always careful to begin with a very weak food, and carefully work up to that which is nearest in proportion to mother's milk, namely, 4 per cent of fat, 7 per cent of sugar, and 1.50 per cent of proteids.

I have now a sad confession to make. When the formula which I have selected does not agree with the infant, I am always in somewhat of a quandary as to which particular element is doing the harm, the fat or the proteid. I get over this uncertainty easily and safely, however, by at once dropping to a formula which is weak in both fats and proteids, and again gradually work up. In the great majority of instances I find that the food weak in proteids, and relatively strong in sugar and fats, is the one usually best borne. Of course, there are many instances in which the fats are not borne well, and they are easily discovered by daily manipulation of the formulæ on this third card. Now, these words, fats, proteids, and sugar, in common with the formulæ indicating their proportions, at one time seemed mere Yiddish to me. Doubtless my education was neglected, as indeed it was in those particulars, but if instead of thinking about a food having so much milk, so much cream, and so much water, we will study well these three cards and think of the food as composed of proteids, fats, and sugar, after a short while everything will be clear sailing, and we shall have comfort in certainty, and our babies will live and thrive.

Some one may ask, is all the scientific work which has been done upon artificial foods valueless? Are such foods never of any use? Such foods are certainly a delusion and a snare if we depend upon them absolutely, or chiefly even. As a makeshift they are of value. I still use them occasionally, when for some reason I am handicapped by bad milk, ignorant mothers, my own failure to grasp the case, or in the really rare instances when no milk however carefully prepared appears to suit the case. I have found them of value in such instances, but I never use them long. They are for the greater part rich in carbohydrates, and while some of them contain about a normal amount of proteids they are all poor in fats, and it is well known that there is lacking some element necessary to the proper nourishment of the infant.

Almost as important as the character of food given is the amount and intervals at which the food is administered. It matters

little how correct the formula is, if the little patient whose stomach normally contains two ounces is allowed to gorge itself with two or three times that amount, dire results are sure to follow. Therefore the card which I have shown containing the proper amount of food at a given age is just as necessary to have about you as are the other two.

In conclusion, then, experience has satisfied me that a modification of milk is practical for feeding infants.

Much attention must be given to the details, and among the poor and ignorant many lessons must be given, and care taken that good milk is used in proper proportions.

The trouble will be paid for by the fall in morbidity and mortality of artificially fed children under our care.

THE CLINICAL SIGNIFICANCE OF VARIATIONS IN BLOOD-PRESSURE.[1]

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Although several other papers have been contributed to this symposium the title of the part which has been assigned to me is alone sufficient in scope to cover a field too large to be adequately considered in an entire evening. There is assuredly no topic which can be discussed with greater benefit to ourselves or to those who may be interested in our proceedings than this, because the variations which take place in blood-pressure will, if carefully studied, be a source from which we may gain most valuable ideas as to the diagnosis, prognosis, and treatment of an immense number of conditions due to acute or chronic disease. It is important to recall the fact that very great variations occur in health under the influence of exercise, rest, sleep, digestion, mental processes, and time of day, and it is equally important to remember certain physiological facts which practitioners are prone to ignore, partly because they wilfully forget physiological facts in distinction from pathological facts, having the extraordinary idea that physiology is a science which has to be studied before graduation and that pathological facts are the only ones of interest to the practitioner. Nothing can be more erroneous and nothing more destructive of an ability to grasp and utilize bedside observation than this delusion.

The first physiological fact to be recalled is that the vascular system is not a mere arrangement of conducting tubes through which the blood passes as water passes through a set of pipes when driven by a pump. On the contrary, there is no more complex and active mechanism in the body than the vascular system, and the laws of physics are combined with laws of arterial physiology in as complex a manner as are the laws of optics combined with the functions and tissues of the eyeballs. The whole apparatus is not only composed of elastic tissues, muscular tissues, and fibrous tissues which adjust themselves to the needs of the moment, but it is under the control of a vasomotor center in the medulla, and of a host of widely-scattered subcenters which respond not alone to the chief center but to many other influences. Again, this nerve supply not only possesses fibers which carry constricting influences, but dilator fibers; in other words, vasodilatation is quite as much an active process as constriction, although we are prone to regard it as passive and to think of vasodilatation as if it were due to nervous inactivity in every case. Further than this the circulatory system is so well arranged that dilatation in one part, because of increased function in that area, is compensated for by contraction elsewhere, and large vascular networks are prepared at a moment's notice to relieve excessive pressure by receiving blood in large quantities. It is this very elasticity of function that makes health, and any interference with it brings disease, old age, and death. To use the words of

[1] Part of a Symposium on Blood-pressure before the Pathological Society of Philadelphia, Jan. 24, 1907.

Leonard Hill, "A high pressure main runs to all the organs of the body. By means of the vasomotor nerves its contents can be turned on here and there, and any part flushed with blood, while the supply to the remaining parts is proportionately diminished."

A third and perhaps the most important vascular function is the elasticity of the vessels, both laterally and longitudinally, an elasticity which responds to the throbbing of the heart with every beat, an elasticity which permits the heart to labor without overworking, and which aids in urging on the blood stream into the capillaries, and even into the veins. This elasticity is as vital for normal function as the perfect yielding and resistance of the spring in a watch, and, to use a commercial phrase, its existence maintains a "community of interest" which is essential to life.

When we come to the study of abnormal arterial tension we find that we have to consider cases in which the tension is too high and others in which it is too low, and if time permitted I could discuss an important group of cases in which local states of hyper- and hypotension are of considerable importance. The latter types will not be taken up at this time.

Taking up cases of high tension first we find that we can consider it as normal and pathological. The normal cases are those in which the tension is raised to a point above normal by exercise or excitement, such tension being a natural or physiological response. This form of high tension possesses no interest for the clinician unless it is associated with the presence of a weak heart or is so great and prolonged that it produces cardiac distress or injury. It is the form of high tension that frequently damages the heart of the sedentary man who suddenly decides that he needs exercise and takes it in strenuous and excessive degree. I think we can all recall cases of this kind, particularly in men about or beyond middle age. Another type of normal high tension, in one sense of the word, is met with in the stage of onset of acute febrile diseases when it may be an effort on the part of the body to supply more blood to all areas for protective purposes, for all large capillary networks are poison destroyers. Still another normal or beneficial type of high tension is the high tension of intracranial injury or disease, in which states Cushing has shown us that the rise is essential to the preservation of life. In early CO_2 poisoning the rise of tension is designed to send more blood to the respiratory center, and the rise due to severe pain, as in renal colic, lead colic, and labor, may all be advantageous. In the latter case (labor) I have elsewhere pointed out that it is this rise of tension produced by pain that permits women in labor to take chloroform with relative impunity. These facts should make us cautious in the use of vascular relaxants, unless we are certain that the high tension is useless and actually harmful. If Cushing is right, how many persons have been hurried to their end by bleeding in apoplexy.

Leaving those types of high tension which are solely due to increased functional activity of the vasomotor and vascular system, we step into the cheerless and tortuous path of persistent or chronic vascular spasm and fibrosis, a state toward which each and every one approaches as years go by, a state which affects physicians, lawyers, bankers, and financiers—forgive the association of pursuits—more frequently than any other class of individuals.

High tension of this persistent type often tells of the habits of the patient in the past and present, and directs us to the study of his heart, his kidneys, and his retinal vessels in a way that must not be ignored. In some instances there can be no doubt that a large part of the hypertension is functional in the sense that it is not entirely due to actual organic changes in the vessels; in other instances it is almost entirely due to the presence of fibroid change and the ability of a strong heart to pump vigorously. In some the spasm is due to great nervous strain and the use of stimulants, in others it is due to poisons in the blood, and in the functional type the very existence of these factors for long periods of time results in actual lesions. Brunton has recently advanced the view that not only

does high arterial tension do harm by interfering with the nutrition of the tissues, but also by interfering with the nutrition of the vessels themselves. Thus he points out in his usual lucid way that the high tension compresses the vaso-vasorum between the inner coats and the fibrous coat, which is fixed, because it has reached the point of fixation by distention. Again, he advances the view that the normal constant expansion and contraction of vessels in health, like massage, maintains and aids the blood flow in the vaso-vasorum.

What is the significance of high tension as to the heart? If its sounds are approximately normal we learn that it is still a fairly healthy organ, able to stand up to its work, but we must bear in mind that in many men past middle life a state of increased tension exists which is not appreciated because the heart has gradually become accustomed to the strain. The stress and strength are so nearly balanced that when a sudden increase in exertion is made, as in running for a car, or taking any form of violent exercise, dilatation due to overstrain at once develops. Abnormal increase in tension means increased work for the heart muscle, and increased strain upon its valves, particularly the aortic and mitral leaflets. The result of this strain is speedily manifested in a previously normal heart by hypertrophy with associated dilatation, in a previously feeble or diseased heart by dilatation with increase in its feebleness, in failure of the mitral valves to stand the great pressure brought to bear on them with each systole, a failure increased in effect by the fact that the mitral rim is feeble also, so that mitral regurgitation takes place, the result being that the blood finds it as easy to slip back into the auricle as to pass out into the aorta. The mere high tension due to narrowing of the arterioles is not alone responsible for this cardiac disaster; the very fixation of the vessels increases the work of the heart, and with fixation come elongation and tortuosity, which demand increased cardiac effort. The heart now fails not alone from overwork, but in addition it may begin to develop degenerative changes in its fibers, for the same factors that act deleteriously on the muscular fiber of the vessel wall also act on the more specialized muscular fibers of this organ.

Time does not permit me to go into the discussion of whether arterial spasm and fibrosis is the cause or result of renal disease. It is sufficient for us to know that renal disease is often present, and that the prognosis depends very largely upon its degree. So, too, the changes in the retinal vessels, so well studied by Hirschberg and Gunn in Europe and by de Schweinitz in this country, are of great prognostic and diagnostic value, the presence of compressed vessels showing high tension, and the presence of retinitis indicating grave danger from vascular rupture and toxemia.

In this connection it is essential to emphasize a fact which should control us in all our work, namely, that we must not reach an opinion as to the condition of a patient from the signs offered by any one part, nor must we regard it as more than probable that because the vascular system seems fibroid in one area it is universally so in equal degree. How often do we see persons with marked degenerative changes in the radials whose retinal vessels look as if they were those of a child; and how frequently we see patients with severe retinal changes, such as pressure and hemorrhage, who have good radials and withstand great vascular stress. Again, it is essential to study more than one vessel to determine the degree of tension. How often does one radial seem tense and the other normal. I am constantly impressed with the frequency with which the right and left radial artery gives us a different conception of the tension actually present.

In walking cases it is an evil practice to attempt to determine the tension until the patient has had twenty-four hours' rest in bed. Not rarely the exercise of walking, or the excitement of the visit, raises tension to an exaggerated degree, or if the heart is fatigued the pressure may be abnormally low, although vascular spasm and fibrosis at other times make it high.

Another question of importance is

whether an abnormally constant high tension is always evil and ought always to be reduced. Are we to regard it as an evil to be attacked, or recognize that it has become a necessary and unavoidable evil? I believe that the present attitude of the profession in regard to high tension is tending to the abuse of vascular relaxants in many cases for the following reasons: It is a question whether high tension may not be designed by nature to drive blood through narrowed vessels to distant parts for their proper nutrition. If we lower pressure by relaxants of the larger arterioles and arteries we starve distant tissues. Again, the heart in many cases of high tension has undergone compensatory hypertrophy, and this increased power and the high tension help to feed the heart muscle itself through the coronary vessels and the vessels of Thebesius. Again, the normal heart is designed to beat against a pressure of from 100 to 140 millimeters of mercury, and nothing exhausts a heart so rapidly as to beat excessively because of low pressure. I am inclined to think that very often the hypertrophied heart of high tension may be considered to have established for itself a new standard of pressure, say of 130 to 170, and if we reduce this we may produce a state which may be considered as abnormal as is a pressure below the true normal. I am certain I have seen this condition again and again. In other words, in studying high pressure, it is not sufficient to study the pressure alone. We must study the whole cardio-vascular apparatus. We must endeavor to prevent an increase in tension, but we must not reduce tension simply because it is high unless we find that the heart cannot stand the stress, or that the pressure is so high and vessels so fragile that rupture is threatened.

Having considered some of the facts which concern hypertension in the arterial system, we have still before us the study of hypotension. Such a condition, as a chronic state, is rare as compared to hypertension, and is most frequently met with as a part of some suddenly developed condition in the course of an acute illness, or as a result of accident.

When the hypotension is chronic it depends, in the great majority of instances, upon feebleness of the heart muscle, but in one particular malady at least we have a persistent low tension not so much as a result of cardiac feebleness as of vascular relaxation, namely, exophthalmic goitre, in which disease the thyroid secretion acts as a powerful vascular sedative. Indeed, I am inclined to believe that much of the tachycardia of Graves's disease is due to the lack of resistance in the arterioles to the flow of blood. The hypothesis may be advanced that ordinarily normal tension is maintained at least in part by a balance between the effects of thyroid secretion and adrenal secretion, and if this is true then adrenalin, if properly administered, might be of value in this malady.

Not rarely in neurasthenic persons, or persons who are suffering from the after-effects of an acute illness, hypotension is an important factor. Thus, I have seen persistent diurnal somnolence exist while the patient is up and about, replaced by marked nocturnal wakefulness as soon as he lies down. This state is due to a low tension which prevents an adequate supply of blood to the brain, which organ immediately becomes active as soon as the recumbent posture is assumed.

But after all the state of hypotension is met with most frequently in acute illness, and it is usually of far greater gravity, when it is marked, than is hypertension, because it indicates lack of power, nervous and circulatory, and because we have no remedies upon which we can rely as all-powerful vascular stimulants as we can rely on the nitrites as all-powerful relaxants.

This condition of hypotension in acute illness may be considered under two headings: The first type is met with at the critical period of acute infections, of which the most noteworthy is, perhaps, croupous pneumonia. It is not uncommon to find in these patients at this time a state bordering on collapse: the face is anxious, the forehead, wrists, and the trunk bedewed with sweat, the pulse very full, but the arteries relaxed, and the heart's action excessive,

as it actively endeavors to fill the leaking vessels, which do not offer the normal resistance to its action. This state depends chiefly, if not entirely, upon vascular hypotonus; the man is bleeding into his own vessels, and the treatment calls not for cardiac stimulants so much as for vascular stimulants, such as strychnine and atropine.

Again, in the course of one of the prolonged acute infections, such as enteric fever, for example, how often have we all of us stood by the bed with the fingers on the pulse, and felt the relaxed vessel with its large, full, but low tension wave, and at the same time thought hard for some vascular stimulant which would save the heart by restoring normal vessel tone. The therapeutic proposition is not so easy in such a case because the condition is gradual in its onset, and depends not upon a sudden fall of temperature, which results in relaxation due to the loss of that powerful stimulant, heat, but upon toxemia and feebleness of the general nervous system. Another cause in these cases is probably a degenerative change in the muscularis of the vessel wall, so that it cannot be materially affected by treatment. I have met with this state chiefly under two circumstances: (*a*) when profound toxemia has existed, and the vessels have degenerated, a state which is often present in typhoid fever unless prevented by the cold bath; (*b*) when strychnine has been used as stimulant for several days or weeks instead of being withheld for emergencies, as it ought to be. These states are met with commonly in influenza as well as in typhoid fever, and of course complicate other asthenic toxemic diseases.

When discussing hypertension I was careful to emphasize a point which I strongly believe in, namely, that in some conditions a tension which is above normal (and so essentially hypertension) is not rarely present in moderate degree as an endeavor of the body to meet a need. I am also firmly convinced that sometimes a moderate degree of hypotension is in one sense physiological in some illnesses, and should not be interfered with. In the middle stages of typhoid fever, when the circulatory excitement of onset has passed by, the system "settles down," so to speak, to the task of meeting a prolonged strain. The physician who whips up the circulation at this time, solely because the tension is low, forces his patient to an expenditure of energy which is wasteful and dangerous. It is only when overaction of the heart is due to low tension, or when renal or pulmonary stasis results from this cause, that interference is required.

In other words, when we are studying hypertension and hypotension we must combine our recognition of these states with the recognition of their relationship to other states, and perceive that they are but a part in the very complex problem before us. Neither high nor low tension is in itself evil if within certain bounds. Indeed, each may be salutary.

In conclusion I may be pardoned if I resort to the somewhat ancient method of expressing my ideas as to the therapy of high and low tension by a parable:

A landsman having taken passage on a ship became greatly alarmed as the vessel rose and fell during a gale. He therefore besought the captain to force the ship to lie on an even keel, but he was told that the rise and fall of the ship was enabling it to ride out the gale, and that if no rise and fall occurred the condition would be desperate because it would mean that the vessel was waterlogged.

The friends of a man acutely ill became greatly alarmed because his blood-pressure rose and fell. They therefore besought the physician to force these functions to "lie on an even keel," but the wise physician assured them these were natural manifestations of illness, that it might bring disaster to interfere with them, and said "when these variations from the normal become harmful, it will be time enough to correct them."

It is as unwise to give drugs to the patient simply because his arterial tension is high or low as it is for the captain to meddle with a ship because she does not lie on an even keel.

EDITORIAL.

THE IMPORTANCE OF TREATING THE PHARYNX AND TONSILS IN THE EARLY STAGES OF SOME ACUTE INFECTIONS.

In the old days, before our knowledge of bacterial infection was as complete as it is at present, the fact that the tonsils were frequently found to be inflamed in cases of acute illness and rheumatic affections gave rise to the belief that the tonsillar state was the result rather than the cause of illness, and on this basis a very considerable number of practitioners were wont to administer the salicylates and quinine in full doses with the idea that the rheumatic poison, so-called, or malarial poison, was responsible for the local inflammation in these glands. Indeed, the salicylic acid treatment of tonsillitis still remains a popular method, and there is considerable evidence to show that it is quite useful, even if the original reason for its employment has been found to be incorrect.

Recent investigations, combined with clinical studies, have proved again and again that the tonsils in the majority of instances act as an efficient barrier against the entrance of infecting microörganisms into the general system, and the swelling of these glandular tissues after exposure to certain infections is undoubtedly the result of a battle royal between the resistance of the individual and the parasites which are attacking him. It is quite interesting to note how frequently symptoms of general infection, as represented by chilliness, mild fever, backache, and general muscular soreness, will be found to be associated with the appearance upon the tonsils of follicular exudation and swelling in these parts; and again, it is interesting to note that for some reason, which is as yet unexplained, the salicylate of cinchonidine in particular serves to diminish these disagreeable symptoms, particularly if it is combined with some more powerful salicylate, like salicylate of strontium, and if at the same time a gargle of peroxide of hydrogen in water is used for its local effect upon the septic condition of the pharynx and tonsillar tissues. Of course, in cases in which the general systemic infection has become marked, the local treatment cannot be expected to produce very material results, but in the early stages of those infections which take place through the tonsils local treatment is often exceedingly advantageous, not only when peroxide is used, but when other antiseptics are employed. In this connection the well-known use of frequent small doses of biniodide of mercury is to be borne in mind.

Our attention has been again called to this subject not only by constant personal experience along these lines, but by a paper contributed to the *Boston Medical and Surgical Journal* of November 29, 1906, by Goodale. He pays particular attention to the presence of tuberculosis of the tonsils and of infectious arthritis arising through the entrance of pathogenic organisms by this pathway. In some instances it is possible that the symptoms arise from the absorption of toxic material rather than by the actual entrance of the germs themselves. Goodale asserts that the examination of a large number of cases of infectious arthritis with regard to the condition of the tonsils has demonstrated the existence of pathological alterations in the tonsils characterized in general by retention of lacunar detritus, with or without hypertrophy of the organ. He even goes so far as to suggest that where inspection fails to reveal deep-seated collections of detritus it is wise in some cases of arthritis to extirpate the tonsils in order to remove a source, or nest, of infection. Of course, such advice only holds good in those cases in which as the result of disease the tonsil has become distinctly pathological in its condition. To remove tonsils which are to a large extent healthy would, it seems to us, simply remove one of the barriers introduced by nature in the

pathway of infection, but chronic cheesy tonsils should always be regarded as areas from which invading microörganisms may descend upon the general system of the patient. It follows, therefore, that even if the patient suffers from no discomfort in his tonsils, these tissues should be carefully treated, and they may be removed, particularly if they are the only infecting source which can be discovered.

THE QUESTION OF CLIMATE IN THE TREATMENT OF TUBERCULOSIS.

In its ceaseless struggle with tubercular infection the medical profession is from time to time driven into the acceptance of certain views which are promulgated by professional leaders, or by those who make a specialty of treating cases of this character. In many instances the struggle seems to be so difficult and the results so doubtful that both the patient and his physician grasp at straws, which seem to be floating upon the river of possible recovery, only to find that they are of little more value than real straws are to the drowning man. For many years the profession did not know of the infectious nature of tuberculosis, and long after it recognized it unwisely pinned its faith upon the employment of drugs in an attempt to cure it. Better conceptions of the tubercle bacillus and the pathological processes which it engenders have however convinced most practitioners of the present time that drugs are of very little advantage, and can only be expected to do good when they combat certain symptoms or conditions which arise as complications of the tubercular infection. Indeed, in many cases there can be no doubt that drugs, by destroying digestion, do far more harm than good.

The employment of climate in the treatment of pulmonary tuberculosis has been gradually increasing in popularity for nearly forty years, and during the last ten years may be said to have taken the profession by storm. The general conclusion has been reached that high altitudes and dry climates are, in the vast majority of cases, the conditions of election, and it has been pretty well decided that marine climates, except in a few peculiar cases, are not advantageous. The result has been that an almost innumerable host of consumptive patients have been sent hundreds of miles from home life to areas in which advantageous climatic conditions undoubtedly exist, and while a very large number of these persons have been materially benefited or cured, it is a regrettable fact that in many instances the disease has been so far advanced, or the circumstances surrounding the patient have been so unfavorable, that good results have not been obtained, the patients suffering from lack of "creature comforts," of good food, and from homesickness, at a time when perhaps they were so ill that all these things are necessary for a healthy and happy existence.

All waves of professional enthusiasm are followed by waves of reaction, and it is interesting to note that a large number of experienced men are now contributing to the literature of tuberculosis articles in which they strongly advocate the so-called home treatment of the disease, using superalimentation and an abundance of fresh air, and little medicine, and reporting as a result of these measures cures which they claim equal or even exceed those obtained by patients who go to places which are said to possess admirable climatic conditions. In their enthusiasm they are even going so far as to assert that home treatment is better than foreign treatment, and in a certain proportion of cases this cannot be denied, when the patient's means are limited and distant travel means actual poverty. The general practitioner, it seems to us, must at the present time recognize that a very large proportion of cases of pulmonary tuberculosis are best treated at home if fresh air and good food and a fair modicum of sunshine are obtainable. But experience and reason confirms us in our belief that other patients more favorably situated as to means and opportunities will do better still if they go to some place where all of the

home comforts will be provided, and where, in addition, the climate is such that the air is dry and the number of hours or days of sunshine is very great. In some instances very advantageous results can be obtained but a few miles from the great cities. In other instances, Arizona, New Mexico, Colorado, or certain places in California will give the best results.

The important point for consideration in this matter is one which we have raised very frequently on other occasions in regard to the choice of drugs in the treatment of various maladies, when we have asserted that no one drug would produce the best results in every case, but that the needs of the patient must be carefully considered if good results were to be obtained. To resort to superalimentation, on the one hand, without the proper quantity of fresh air is bad therapeutics; to assert that home treatment is universally applicable and preferable is bad therapeutics; and to claim that residence in a dry climate and at an altitude is essential in every case is erroneous. But the point of interest is that we have several measures which are of value in the treatment of pulmonary tuberculosis, which in some instances can be combined, and which in others must be separately used. The patient who consults a physician suffering from a pulmonary lesion of this character has a right to expect of him advice as to which measures or which modes shall be followed.

COLD AIR VERSUS COOKED AIR.

Some of our readers have probably been very much interested during the past year or two in reading the reports which have been made by Dr. W. P. Northrup in regard to his method of treating children who are suffering from pneumonia and other infectious diseases. It will be recalled that the wards in which the children are ill are not provided with any artificial heat, and that whenever possible he moves the child and its bed to the roof of the hospital or to the roof of the house, and keeps it there, although the temperature may be far below the freezing point, the child being, of course, adequately covered. He asserts as the result of his clinical experience that by this means the mortality of his cases has been materially diminished, and that the whole progress of the disease is favorably modified. Children who are livid and cyanotic speedily regain a more normal color, and the stupor which frequently seems about to overwhelm them is largely dissipated, if his observations are correct. Naturally an enthusiast, Dr. Northrup has, of course, become an ardent advocate of the so-called cold-air treatment of disease with especial reference to pneumonia, and has gone from place to place singing the praises of this plan of treatment with an ardor which must have carried some degree of conviction, at least, to his more timid colleagues.

There can be no doubt that such an apostle of pure cold air performs a most valuable function in calling the attention of the profession and the laity to the absolute necessity of adequate ventilation, and even if it is believed by some that his enthusiasm carries him to an excess, nevertheless it is to be considered a great gain if he is enabled to force upon us the crying needs of these cases. The question arises, however, whether the benefits which accrue under his method of treatment are dependent so much upon cold air as they are dependent upon pure air. As a matter of fact we believe that pure air is the real consideration, and that its temperature has very little to do with its value unless that temperature has been artificially modified by the methods which are commonly employed in the home or in the hospital. There can be no doubt that in the endeavor to maintain a constant temperature in a room or in a ward it not infrequently happens that too little pure air from out-of-doors gains access to the apartment, any so-called fresh air which enters the room or the ward being delivered to it after it has passed over heated drums or steam pipes, and has therefore been cooked, and perhaps in addition laden with a certain amount of gas and dust which it otherwise would not contain. We are inclined to believe that our

knowledge of the health-giving properties of pure air is as scanty as was our knowledge of the health-giving properties of sunlight before Finsen showed that solar rays possessed special therapeutic properties, and we would not be at all surprised to learn, at some future time, that many of the processes which are resorted to for the artificial heating of rooms deprive the air of some constituent which is valuable and even necessary. A few years ago, when an extraordinary fear of the contamination of milk by bacteria existed, it happened that an immense number of babies became ill because they received milk which had been treated by exposure to high heat with the object of destroying its germ content, the fact not being recognized that this same process of boiling materially diminished the nutritive properties of this fluid. When these facts were finally forced upon us pasteurization became the vogue, and now there are many who believe that pasteurization deprives the milk of certain values, and that it should only be resorted to when there is good reason to believe that the milk is more than usually impure. In other words, the cooking process destroys some antibody or other unknown factor in the milk which is essential to its full value. May it not be possible that the cooking of the air destroys an equally valuable content of which we are as yet in ignorance? We are convinced, after reading several of Dr. Northrup's contributions to this subject and after hearing him speak with enthusiasm concerning his methods, of two things: that neither the coldness nor the purity of the air is the only essential factor in his procedures, but that in addition the danger arises from the heating of the air to such an extent that it is cooked. If this were not true we should have a lower mortality for the out-of-door treatment for pneumonia in the winter than in the summer time, whereas, as a matter of fact, the reverse is correct.

The practical lesson to be learned from Northrup's suggestions is that, on the one hand, the patient should not be exposed to all the rigors of a winter atmosphere, but that it is certainly advisable that the air of the room should not be heated to the temperature of the ordinary living room, but its temperature maintained at 55° or 60°, so that it is not bitterly cold, and, on the other hand, not thoroughly cooked.

MOUTH DISINFECTION.

Several years ago we called attention in the editorial columns of the GAZETTE to the necessity of paying attention to the condition of the mouth prior to the administration of ether or chloroform for the production of surgical anesthesia, it being pointed out that the pulmonary complications which follow the use of these drugs on certain occasions are chiefly due to the inhalation of pathogenic microörganisms which, when in the mouth, are incapable of much harm, but which in the lung create severe disease. When we recollect that the pneumococcus is found in nearly every so-called healthy mouth, and that many other microörganisms are associated with it, it is rather remarkable that pulmonary infections are as rare as they are.

An interesting research to determine the best methods of disinfecting the mouth, particularly in reference to pneumonia, has been published in the *Journal of Infectious Diseases* of October 30, 1906, by Wadsworth. He used a considerable number of substances as mouth-washes, and made culture experiments from the mouth to determine the bactericidal value of his measures. It is interesting to note that in his experience most of the mixtures or substances used at the present time as mouth-washes possess very little if any true disinfectant or germicidal power, whereas normal salt solution or ordinary alkaline solutions are efficient in destroying pneumococci. He also found that none of the so-called commercial solutions, such as listerine, borine, borolyptol, glyco-thymoline, odol, and Seiler's solution, proved efficient when tested upon pneumococci

under conditions supposed to be most favorable for their action, and that even such active disinfectants as formalin, lysol, and hydrogen peroxide failed to act on the pneumococcus in exudates. It is also interesting to note that alcohol alone of all the antiseptics proved efficient when tested on the pneumococci under all conditions. Again, Wadsworth found that the rapid diffusion of alcoholic solutions was greatly accelerated by the addition of glycerin. In other words, cleansing the mouth with a normal salt solution simply cleanses it, but does not destroy the bacteria, whereas washing the mouth with an alcoholic wash containing 30 per cent of alcohol actually produces true disinfection, particularly if to the 30-per-cent solution of alcohol in water a small quantity of glycerin and salt is added. It would seem that this investigation possesses great practical importance, since it enables us not only to prepare patients for operation in such a way that pulmonary complications can be largely avoided, but also because it helps us to prevent the spread of acute infectious diseases, such as pneumonia, from one individual to another, the spread being most frequently induced by small particles of sputum laden with the pneumococcus being expelled in coughing or sneezing, and so finding a way to reach healthy individuals. In hospital wards we are learning that epidemics of croupous pneumonia not infrequently arise after the entrance of a single patient suffering from this disease, and Wadsworth's investigations provide us with a most valuable means of prophylaxis.

TREATMENT OF CANCER.

This topic, always one of fresh interest, partly because the solution of the question of etiology though for years apparently within our grasp still eludes us, mainly because of the increasing prevalence of the disease and the hopelessness of therapeutic measures other than early operation, has been particularly selected by Edmund Owen as the subject of his Bradshaw lecture. There is no part of Owen's teaching more valuable than that embodied in the following remark: "I shall begin my remarks with the absolute statement that in the present state of medical and surgical knowledge and experience the only way in which the cure of a cancer can be obtained is by its prompt and thorough removal by operation. When the surgeon has made up his mind that a growth is malignant, and that it can and ought to be removed, he should lose no time."

Owen strongly deprecates the wasting of precious days or weeks by recourse to electricity, *x*-rays, or other methods suggested because of the patient's terror of the knife. He notes that many people suffering from cancer delay radical treatment because of the misleading popular scientific articles in the daily papers in response to the wide demand for reading of this kind. These articles are some of them written for advertising purposes; more often they are dictated by an irresponsible optimism unchecked by real knowledge, and suggest for a new treatment prospects of cure which are absolutely unjustified by clinical experience.

In regard to the treatment of mammary cancer Owen states that he cannot believe it necessary to remove the thoracic part of the pectoralis major as a routine practice when the breast shows no attachment to it. In this matter he differs from the majority of modern surgeons.

Cancer of the lip should always be accompanied by opening up of the submaxillary region and taking away the glands, since the latter contain epithelial growths almost as surely as do the labial sore, and if left it is but a question of time when they will involve the neck in malignant ulceration. The simple operation of a wedge from the lip is now happily a thing of the past. If the surgeon intends to excise a wedge-shaped mass the apex must be represented by the tumor, and the sides should spread away to such a degree that when their distant ends are joined by a cross-cut not only all the infected glands

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but the lymphatic vessels leading from the cancerous area to them are removed in one piece. Cancer of the tongue quickly infects the lymphatic vessels and glands, but differs from other carcinomata in the fact that it is little inclined to wide metastasis. The vessels of the tongue frequently bifurcate, carrying infection to both sides of the neck. This involves complete removal of the organ even in cases of small, one-sided cancer, and very extensive operations on the neck. Submental, submaxillary, and the upper and lower carotid lymphatics, together with the submaxillary salivary glands, should be taken out with the tongue in one piece. The anterior triangle of the neck must be left as naked as the armpit is left after a complete operation for cancer of the breast. This operation may sometimes have to be divided into two parts, the tongue being first removed and the neck being cleared out later.

Owen alludes to Dawbarn's treatment of cancer by the method of local starvation—*i.e.*, cutting off the blood-supply by ligation of the arteries—and seems inclined to accept this method as serviceable in some cases.

As to statistics, Owen observes that "the true discovery of the nature and cure of cancer will not have to be made manifest by columns of figures and percentage calculations of cures, which, like pancakes on Shrove Tuesday, have to be served up quickly, lest delay should spoil them." Nor does he regard of great value "percentages as applied to human beings when compiled by a surgeon in his evening leisure, to set forth the result of his own treatment of certain sick people. Two patients with a disease called by the same name are not of the same clinical value, nor are twenty, nor two hundred, and the sooner surgery discards the actuarial method in setting forth progress in connection with the treatment of cancer the better."

As to the injection treatment, particularly that advocated by Doyen, Owen has little to say in its favor. He gives a fitting tribute to the value of the work done by the Imperial Cancer Research Laboratory, and roughly sketches the findings in relation to the tracing of cancer in the animal kingdom. It is interesting to note that among the lower vertebrates there is a close association between the incidence of cancer and advancing age. This was observed in cows, mice, horses, dogs, cats, and fish. Moreover, Owen finds comfort in the observation that trout and carp are liable to cancer, thus disproving the infallibility of the teaching to the effect that this disease is one of the evil effects of the indulgence in alcoholic beverages. The mouse, apparently, is the only animal in which cancer can be obtained by grafting. These cancer grafts will not grow continuously in other animals, and indeed will only take root in mice of the same species.

As to the various attempts which have been made to establish the value of cancer cures, the results obtained by radium and by other reputed remedies, which have been forwarded to the laboratory to be tested, have been entirely negative. Owen states that he regrets his inability to call attention to any modern method of treatment which can honestly promise a cure. No certain cure has yet been found, nor so far as known are searchers yet upon the obvious track of one.

GRAFTING OF THE KIDNEYS IN THE BEND OF THE ELBOW BY ARTERIAL AND VENOUS SUTURES.

By those interested in laboratory research it will be borne in mind that not only has the feasibility of arterial and venous end-to-end suture been demonstrated, but it has been shown that certainly in the same species by this means the blood from one individual can be conveyed to the vessels of another without devitalization of its cellular elements. Moreover, it has been experimentally demonstrated in animals that the kidney can be transplanted from its normal position to another part of the body, and by arterial and venous suture its vitality may be preserved for a time at least to such a

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degree that it will secrete apparently normal urine. As a further refinement of this experiment Carrel transplanted the kidney of an animal into the neck, uniting the renal artery to the carotid, the renal vein to a branch of the jugular, and the ureter into the esophagus, noting that the animal subsequently passed its urine into its own stomach.

Doubtless stimulated thereto by these extraordinary experiments Jaboulay (quoted from the *New York Medical Journal,* Dec. 22, 1906) in two cases grafted a normal kidney into the bend of the elbow. In the first instance the kidney was taken from a pig. The patient was suffering from advanced Bright's disease, and the operation was to supplement the defect of urinary secretion of organic disease by installing a healthy normal kidney, thus coming to the aid of the natural organs which were affected by an incurable malady. The patient, a woman, was passing only about 500 cubic centimeters of urine daily, which was albuminous and contained but 4 grammes of urea. From a pig killed three hours previously the left kidney was removed and placed in warm salt water. A longitudinal incision was then made in the bend of the left elbow, exposing the median cephalic vein. The kidney was then placed in the wound with the ureter directed toward the inner border of the bend of the elbow. The renal artery was joined to the central termination of the brachial artery, and the renal vein to the central end of the median cephalic vein by a somewhat complicated method. The artery and vein of the patient were passed through short metallic tubes, turned back over the latter, thus everting the intima, and secured in this position by an encircling ligature which fitted into a circular groove on the outer surface of the metallic ferrule. The vessels of the pig's kidney were drawn over the everted human vessels like a hood, completely enveloping them. A circular thread was applied to maintain this relation. After the removal of the Esmarch bandage, the blood was observed to flow through the junction and into the renal artery and the kidney. The latter became swollen, and a drop of blood appeared upon a spot of accidentally produced abrasion on the convexity, inflicted when the kidney was removed from its adipose envelope. The forearm wound was partly sutured and the arm was bandaged in a molded tin splint.

Jaboulay notes that the immediate result of transplanting the kidney was marked diuresis. On the third day the dressing was removed and the kidney found gangrenous on the surface, though its deeper part had contracted adhesions, and this portion of the organ was of a rose color. This gangrenous kidney was removed, the large vessels being filled with clots. In the ureter were a few drops of urine of acid reaction.

In the second case the kidney of a goat was taken. It also became gangrenous, nor in this instance is there a note of improvement of the patient's condition. Jaboulay holds that if renal grafting should prove feasible, the bend of the elbow is peculiarly adapted for the reception of the new organ.

This procedure, while extremely interesting, has, however, not even the basis of laboratory proof to completely justify it, since evidence is wanting as to the possibility of successfully transplanting from one species to another even simpler structures. Moreover, the method of vascular anastomosis he employed is one which greatly favors thrombosis. Under favoring circumstances an attempt to graft a human kidney by direct end-to-end vessel suture with complete burying of the organ would seem justifiable, and the inguinal region would seem a position more favorable to such implantation than the bend of the elbow, though the operation might be somewhat more difficult.

REPORTS ON THERAPEUTIC PROGRESS.

LONGEVITY AND THE MEANS OF ATTAINING IT.

In an interesting paper on this subject BRUNTON in the *Lancet* of November 17, 1906, gives the following advice:

As a raised blood-pressure is itself productive of degenerative changes in the vessels, we have good grounds for believing that if the rise be detected early and counteracted by proper regimen and treatment the vascular changes which it would otherwise produce might be prevented and life very considerably prolonged. The earlier this is done the better, and it is only likely to be done by the sphygmomanometer being used as frequently by the physician as the stethoscope or thermometer is at present, and with an instrument like Potain's modification of von Basch's the pressure can be taken as quickly and as easily as the pulse-rate can be ascertained by the finger. When the tension is found to be above the normal for the age attention should be directed at once to the diet. Butcher's meat and strong soups or sauces containing meat extract should be prohibited, or only allowed in very limited quantity. Where the tension is very high it may be necessary to limit the diet very rigidly indeed, and only allow farinaceous foods with a small proportion of proteids.

The author remembers being called to see a case of cardiac asthma. The patient had an income of about £30,000 a year, and had a medical man whose sole duty it was to look after him. The first question the author asked was whether the urine was free from albumin. He was told that it was, but on getting it found it to be almost like water, to have a very low specific gravity, and on acidulating it with acetic acid and boiling the top he found a faint haze which is so significant of gouty kidney, but which can sometimes only be seen by boiling the top of the test-tube so as to have the lower part for comparison, and viewing the top against a dark background. He at once advised that the patient's diet should be cut down to simple farinaceous food and milk, and upon this diet he soon became quite free from his attacks. While away for a trip on the continent, the author heard of the old man's death, and supposes that some one else had been called in who regarded it as a burning shame that such a rich old man should be put upon a pauper's diet, and yet this was all he could stand, and a more liberal allowance of food would suffice to kill him.

The number of old people who die in workhouses is generally thought to be considerable. The author has been unable to get any account of the numbers above ninety years of age, but in 1901 the proportion of workhouse paupers to 1,000,000 of the total number living at the same age of eighty-five or upwards was 95,631—that is to say, very nearly 1 in 10. A workhouse diet may not be very pleasing to the palate, but it certainly seems an efficient means of prolonging life, and it might certainly be worth while sometimes for others to adopt it whose circumstances would allow of them to indulge in luxury.

Amongst other things which tend to lower the pressure are certainly the use of cholagogues and purgatives, mercurials, such as blue pill or calomel at night once or twice a week, followed by a saline in the morning, as often as may seem necessary. Iodide of potassium does appear to lessen the tension in many cases, especially when given in large doses, such as from 10 to 30 grains three times a day. The most efficient drugs for lowering blood-pressure are the nitrites or nitrates, a class of bodies the physiological action of which was so well investigated by the late Professor Leech, whose death in the prime of life was not only a great loss to scientific medicine, but a personal sorrow to every one who knew him. Nitrite of amyl and nitrite of isobutyl

have a more rapid action than any other of the series, and are useful in cutting short a paroxysm of pain. Nitroglycerin not only has a similar use, but it can be given in divided doses during the day to keep the tension low. Nitroerythrol has a still slower and more prolonged action, and half a grain or more three or four times a day often suffices to keep the tension within moderate limits and completely to prevent attacks of angina, which previously had occurred many times a day.

Latterly the author has very frequently given nitrate of potash with nitrite of soda to reduce the blood-pressure. A dose of 20 grains of nitrate of potash with half a grain to two grains or more of nitrite of soda in a large tumbler of water every morning appears to have a double action in reducing tension, first, by acting directly on the vessels, and secondly, by clearing out products of tissue waste by virtue of its diuretic action. The author described at the meeting of the British Medical Association in Manchester in 1902 the way in which he was led to use this combination, and he was very much interested to find quite recently that the very remedy which he was employing in consequence of pharmacological researches upon its action had been used empirically for the same purpose nearly 450 years ago by Lord Bacon, who placed his reliance chiefly on bloodletting and the use of saltpeter as the best means of attaining long life.

CHLOROFORM: ITS INDICATION AND ADVANTAGES.

THORNTON writes under this caption in the *Southern California Practitioner* for November, 1906.

Ether, chloroform, and the mixtures each have their advocates, and conflicting statements force the reviewer to form his own conclusions, largely from his personal experience and his knowledge of the physiological action of the various anesthetics.

The depressing action of chloroform on the heart and respiration and its tendency to lower blood-pressure will, in the opinion of the author, always make ether the anesthetic of choice in the average operative case.

Also the secondary toxic effects directly due to the anesthetic employed have been shown to be greater in chloroform than ether. This is especially important in operations requiring considerable time.

The ever-present financial consideration, the ease of administration, the pleasantness of the drug, the quickness of its action, and the small quantity required are some of the factors leading most of us to always carry a bottle of chloroform.

Plethoric subjects with full, bounding pulse, whose heart's action calls for a sedative rather than a stimulant, do far better with chloroform than ether.

Atheroma, arteriosclerosis, aneurism, and conditions of weakened vessel walls forbid the stimulating effect of ether. In operations for the relief of cerebral hemorrhage, brain tumors, and in most of the cases of brain surgery, chloroform is the better anesthetic.

As chloroform does not excite an excessive secretion of saliva and mucus its use is preferred in operations about the mouth, larynx, and upper air-passages; especially is this true where the mirror is to be employed.

Chronic diseases of the lungs are said not to contraindicate ether.

Acute inflammations of the lung tissue and bronchi give chloroform the preference.

On account of the toxic effects of chloroform on already diseased hepatic cells, ether is the anesthetic in liver surgery.

In nephritis, opinion is divided between ether and chloroform. Because of the increased blood-pressure and the fact that most of us were taught that ether was an irritant to these cases, chloroform will be chosen.

In administering ether to alcoholics the only effect produced may be a comfortable "jag" for the patient, and chloroform will be substituted.

Among Western and Southern men chloroform will be used in obstetrics. Its effects in these cases have been a source of wonderment. Oftentimes in forceps deliveries we

are compelled to trust its administration to a member of the family or an indifferent nurse, and rare indeed are the accidents following its use. The patient quickly awakens and nausea is almost unknown.

Chloroform will be used in operations requiring but little time, especially with children and the aged.

The ideal anesthetic perhaps is yet to be discovered, but when the author's appendix is removed he asserts he shall insist that ether be employed by the open, that is, by the drop-by-drop, method.

ETHER: ITS INDICATIONS AND ADVANTAGES.

In the *Southern California Practitioner* for November, 1906, McNeil asserts that there are no contraindications for the use of ether. Any patient who can stand the shock of an operation can take it. Those with nerve, lung, heart, liver, and kidney lesions all do better on it than on any other agent now in use, providing it is carefully and properly administered.

Cases of fracture of the skull, intracranial hemorrhage, or concussion require stimulation and very little anesthesia. Here ether, drop by drop, is ideal.

In pulmonary affections ether has been most strenuously objected to, and entirely without cause. If there is any class of patients who need all the available support it is this class, and as ether stimulates the heart and respiration, and at the same time raises the blood-pressure, it must tend to lessen the work thrown on the unimpaired lung tissue. These patients require a greater percentage of oxygen than any other class, and if given there will be little trouble with coughing and excessive secretion of mucus. Pneumonia following operations was formerly laid to ether, but in the light of more recent observations we can no longer blame it. It is probable that too concentrated vapor, chilling, or embolism is responsible for it. The author approves of Grossman's aphorism: "Pulmonary affections following etherization are not the fault of the ether, but of the anesthetizer."

Grave cardiac lesions do not contraindicate etherization for long operations unless the patient has to sit up to breathe, in which case any anesthetic would be hazardous. Those who require stimulation or have an intermitting pulse do better under ether, but great care must be exercised to bring them through the stage of excitement. Hare says he is strongly convinced that when accidents do occur the ether is not to blame, but rather the shock of the operation.

An organic lesion of the kidney is often benefited, at least symptomatically, rather than damaged by a prolonged etherization.

As a class the plethorics are apt to give the etherizer more scares than any other. A little mucus in the mouth, a dusky face and embarrassed respiration, and a loss of corneal reflex are oftentimes signs of great distress to the etherizer, but if he will give plenty of air, keep in mind the amount of ether and the degree of concentration which he has already administered, and the stage of anesthesia which his patient must be in at the time, he will save himself a great deal of anxiety and annoyance to the operator.

A few words now as to the method of administration. As yet no ideal method for the administration of ether has been devised. Until such is the case it probably makes little difference which inhaler is used, providing of course that the anesthetizer is thoroughly familiar with it and the results he wishes to obtain from its use.

Many elaborate and more or less complicated inhalers have been devised from time to time and used with varying degrees of success. The latest to claim attention is the one invented by Gwathmey, which is so constructed that it will automatically mix a desired percentage of the warmed vapors of chloroform or ether with oxygen at the will of the operator. It is very similar to those devised by Braun and by Wahlgemuth, both of which are being used to some extent in the clinics of Germany. While theoretically they seem near perfection, the writer is informed by those familiar with their use that they are far from satisfactory, and even dangerous in the hands of any but an expert. The excellent

results reported are due rather to the skill of the anesthetizer than to the apparatus. When we consider that chloroform as a general anesthetic is dangerous, and that it is a debated question whether it is possible to actually administer a warm ether vapor, we find small justification for the use of these complicated inhalers. The published experiments made upon animals are imperfect and far from convincing.

There is probably no better inhaler for general use than the Bullard, with which we are all familiar. The use of it and others of a similar pattern is generally known as the closed method and requires considerable more skill than it does to use the open method, which is now becoming so popular. This latter method is called "open" because it permits of a free mixture of air with the ether vapor. The mask generally used consists of an Esmarch chloroform inhaler covered with a dozen layers of gauze. It is simple and clean. The ether is sprinkled on this, and the degree of concentration controlled by covering it entirely or in part with a towel. With a little practice it will be found easy to get a mixture of any required strength depending on the needs of the patient.

By covering the mask with a hot, wet towel, the full effect of the closed method can be obtained. Whatever inhaler is used, it should never cover the eyes, as the etherizer should watch them as he does the pulse.

A chloroform-ether or ethyl-chloride-ether sequence can likewise be used with this mask without removing it from the face.

The author believes the open method is the safest and most generally satisfactory which we now possess, and that in some one of its forms it will continue to grow in popularity until it is universally used. If there is any time when we need fresh air and plenty of it, it is when we are under the shock of a surgical procedure. The guiding principle in the use of ether should be to maintain a perfect anesthesia, and yet at the same time reduce the asphyxial factor to a minimum.

THE LIMITATIONS OF FORMALDEHYDE GAS AS A DISINFECTANT.

Bulletin 27 of the Hygienic Laboratory of the Public Health and Marine Hospital Service contains an exhaustive paper on this subject which may be summarized as follows:

Formaldehyde gas, regardless of the method by which it is evolved, is a powerful surface disinfectant under certain conditions. Successful disinfection with it is so dependent upon several factors that its usefulness is more or less limited. The temperature and humidity are of primary importance, while the influence of the winds, character of the room, etc., are of secondary importance.

The effects of temperature seem to be principally upon the state of the formaldehyde after it is liberated—that is, below a certain point it polymerizes. This seems to take place below about 65° F. with the formalin-permanganate, and below about 60° F. with the other methods. Although the germicidal power of formaldehyde is not entirely lost at these temperatures, it is so diminished as to be of very little practical value for disinfection purposes.

The rôle played by the relative humidity in formaldehyde disinfection is more important than that of any other influencing factor. In the absence of moisture, formaldehyde is practically inert as a germicide. The minimum percentage of relative humidity that invariably gives efficient results in disinfecting with formaldehyde cannot be stated exactly, since it varies slightly according to other conditions, such as temperature, wind, the quantity of gas present, the space to be disinfected, etc.

However, it appears from experience that the relative humidity in the air before starting an experiment should not be lower than as follows: (1) For an ordinary well-closed room, 60 per cent; (2) for ordinary railway cars, 65 per cent. With a high temperature, a large quantity of formaldehyde, and a long exposure, efficient results may be obtained with slightly lower percentages of humidity than just stated.

THE TECHNIQUE OF LUMBAR PUNCTURE IN CHILDREN: WITH PARTICULAR REFERENCE TO THE PRESSURE OF THE CEREBROSPINAL FLUID.

HEIMAN contributes to the *New York Medical Journal* of November 17, 1906, a useful paper on this subject. He advises that the operator sit next to the bed, and after sterilization by boiling of the needle and with sterile hands he locates the desired space, in which with his finger-nail he makes an indentation half-way between the two spines—in the median line in children, five to ten millimeters to the right in adults. Firmly grasping the needle and enclosed stilette in the right hand, fixing the guard at a distance from the point of the needle about equal to the distance it is assumed the needle will enter, and with the left hand making firm counterpressure over the next higher spine, the needle is inserted with its point on the nail mark in a direction almost horizontal, upward to an angle of about 10 degrees. Where in adults the lateral insertion is used, the direction is inward and upward. The stilette is now withdrawn, and the conus is inserted into the hilt of the needle, thus connecting the latter with a manometer by means of the tubing. The horizontal arm of the manometer tube is held about three centimeters below the level of the needle until the cerebrospinal fluid appears in the manometer, after which the horizontal arm of the instrument is raised to the level of the needle and the height of the column of fluid in the manometer is read off on the tape, its zero-mark being at the level of the site of puncture. The tube is again lowered, and the desired amount of fluid allowed to escape into sterile tubes. From time to time the pressure should be measured by raising the tube to see whether the normal (from three to five centimeters) has been reached. Quincke warns us of the danger of allowing the pressure to reach a degree much below normal, especially when in certain pathological conditions it is exceedingly high at the outset, and the decrease is very rapid; in first punctures and in cases of doubtful diagnosis special precautions should be taken in this regard. Pfaundler states that when the pressure has reached from two to two and a half centimeters it is not as a rule safe to withdraw any more cerebrospinal fluid.

If the flow is very slow because of low pressure, it may be artificially increased as follows, by influencing one or more of its three components: (1) The hydrostatic pressure, which is represented by the weight of the column of cerebrospinal fluid, can be increased by sitting the patient up. (2) The elastic pressure, or that exerted by the walls of the subarachnoid space and ventricles, can be increased by effecting more forcible spinal flexion. (3) The vascular pressure, or that carried from the heart through the blood-vessels, can be increased by making the patient cough, cry, or breathe deeply, or by compressing the patient's abdomen. It is mainly the vascular element that gives rise to the clinical manifestations of excessive pressure.

In performing lumbar puncture the manometer should be used as a routine, for the reason that the pressure constitutes the best guide in deciding how much fluid is to be withdrawn. To some extent, however, the quantity to be taken off will depend upon the purpose of the puncture, the character of the fluid, and the condition of the patient.

The total quantity of cerebrospinal fluid in the normal adult is said to be from 15 to 60 Cc.; in adults in whom the quantity of cerebrospinal fluid is presumably normal it is uncommon to obtain more than 15 Cc. on lumbar puncture. In serous and tuberculous meningitis, hydrocephalus, tumors of the brain, and uremia, the fluid is clear; in pachymeningitis or brain trauma it may be bloody; in meningitis due to the meningococcus, pneumococcus, or streptococcus, it is cloudy or purulent; in all of these conditions it is increased in quantity and pressure. The author's experience with high pressure and increase in the quantity of cerebrospinal fluid is limited to cases of serous, cerebrospinal, tuberculous, and streptococcus meningitis, and hydrocephalus. In forty lumbar punctures in which

the patients varied in age from three months to twelve years the highest pressure directly after insertion of the needle was 54 centimeters, the lowest 4 centimeters, and the average 26.2 centimeters. In these same cases the average of the various quantities which were of necessity withdrawn to render the pressure normal was 32 Cc., the maximum 60 Cc., and the minimum 5 Cc. In cases of hydrocephalus enormous quantities can be taken off without any ill effects; in one case the author withdrew more than 150 Cc. on three separate occasions. In a small proportion of cases, even with most painstaking technique, bright bloody fluid is obtained, probably owing to puncture of the venous plexus in the anterior wall of the canal; this accident is never harmful to the patient. Dark, decomposed blood indicates a trauma or pachymeningitis.

If fluid does not appear immediately upon withdrawal of the stilette one should not conclude that there is a "dry tap" before waiting a reasonable period and trying the artificial means of increasing pressure, as described before. If these attempts are unsuccessful the puncture should be repeated in another space; but it is seldom justifiable to go further than this. The causes of dry taps are faulty technique, propulsion of the dura before the point of the needle, occlusion of the needle with tissue, fibrin, or pus, abnormally small amount of secretion, or closure of the foramen of Magendie or aqueduct of Sylvius, owing to the pressure of a tumor or to inflammatory conditions.

The usual depth to which the needle has to be inserted in order to obtain fluid is two to four centimeters in children and four to seven centimeters in adults. The depth of the insertion is easily measured by means of a guard on the stilette. Of course this distance varies with the age and build of the patient; in the series of cases mentioned the depth of insertion was least (2 centimeters) in the youngest patient (three months), and greatest (4.6 centimeters) in the oldest patient (twelve years).

In the description of the technique special stress has been laid on the value and importance of the routine use of the manometer tube. It is probable that many of the reported fatalities occurred as a result of too rapid evacuation of the fluid; this can be avoided if the pressure is carefully observed and never allowed to fall much below normal. Most important is this precaution in cases of doubtful diagnosis, especially if the presence of a brain tumor is suspected.

ADRENALIN CHLORIDE IN THE TREATMENT OF RATTLESNAKE-BITE.

To the *Texas Medical News* for November, 1906, FERGUSON contributes a paper in which he advocates the use of adrenalin in snake-bite. His treatment consists of adrenalin chloride, hypodermically, in sufficient doses and often enough to strengthen and sustain the heart until the poison is eliminated; opium in some form for the pain—the better way would be to administer morphine hypodermically in half-grain doses at first, if the patient be an adult. The wound should be incised several times and injected with a strong solution of potassium permanganate for the purpose of eliminating any poison that may be unabsorbed in the tissues contiguous to the wound.

Rattlesnake venom is deep green in color, has a very high specific gravity, and is comparatively slow of absorption, hence the necessity of incision and injection of permanganate. However, when the fangs enter an artery or vein its toxic effect is almost instantaneous. The permanganate solution is chemically incompatible with snake venom, and decomposes all the venom that comes in contact with it in the tissues and blood.

The adrenalin chloride solution (adrenalin chloride 1 part in 1000 parts of physiological normal salt solution, with 0.5 per cent chloretone) should be administered in small doses and frequently repeated until its physiological effect is obtained, after which it should be administered just often enough to maintain its physiological effect. It is the effect of the venom circulating in

the blood that we counteract by giving adrenalin chloride. It can be given in larger doses and repeated oftener in snake-bite, because snake venom neutralizes the action of morphine. Until antivenene or some other potent remedy is produced, our main reliance in treating snake-bites of all kinds lies in the early and careful administration of adrenalin chloride solution in conjunction with other appropriate remedies.

INTESTINAL ANTISEPTICS.

The *Lancet* of November 10, 1906, has this to say in regard to intestinal antiseptics:

The subject of intestinal antiseptics is both complex and important because either purgation or stimulation of natural secretion contributes indirectly to the removal or destruction of microörganisms in addition to any restraining or germicidal power which particular drugs may directly exert. This is continually illustrated by the rapid occurrence of fermentation and fetor in the intestinal contents when the gall-ducts are obstructed, and the speedy disappearance of these features when bile secretion is restored. Again, the beneficial results of effective purgation apart from any question of antiseptics are well displayed in the use of castor oil or a simple enema, where secondary toxemia or infective processes are associated with defective evacuation of the colon. Owing to the extent and active absorbing properties of the digestive tract considerable limitation is placed upon the use of antiseptics in this direction. Many agents of the kind, which have proved effective in other circumstances, could either not be administered in sufficient doses under the peculiar conditions of dilution that obtain, or must be proscribed altogether on account of their poisonous properties. Added to this, the destructive influence of the digestive juices with alternation of acid and alkaline reaction, and the quantity of organic matter present, preclude the effective action of the less stable antiseptics, not to mention the objections that might be raised to such as would interfere with normal digestive processes, promote undue evolution of gas, be liable to give rise to undesirable by-products, or become unduly absorbed in the presence of alimentary substances, as is thymol in connection with fat or alcohol. Bearing these considerations in mind, it is evident that we can only employ for purposes of intestinal antisepsis such agents as possess powerful germicidal properties and are reasonably stable in the presence of organic matter and the digestive juices without exerting any toxic influence on the human system.

If we may draw any inference from the analogy of growing plants, it may be recalled that such are unable to derive any nutriment from earth completely sterilized by heat and will not germinate or grow in it, but, on the other hand, will flourish in decaying vegetable or animal matter, provided it does not contain chemical or living agents which are inimical or in too great proportion. It may, perhaps, be inferred from this analogy, as well as from the normal condition of the intestinal contents as regards microörganisms, that it is in conditions in which they are present in excess, develop morbid propensities of type, or are represented in formidable proportion and of specifically pathogenic nature, that the aid of antiseptics is invoked. Apart from what may be present in the ingesta, there is a plentiful supply of microörganisms of varied and often noxious character in the mouth, the nares, and the pharynx which constantly obtain access to the intestinal tract, yet for the most part no evil consequences resulting. This immunity may fairly be attributed to the protective influence of gastric digestion, a small percentage of hydrochloric acid being sufficient to destroy most of the organisms, though variations in quantity occur in association with general and local departures from health, so that the protection afforded is not absolute. This is proved by the occurrence of tuberculous and typhoid ulceration in the intestines and occasionally even in the stomach itself. Of initial importance in connection with the question of intestinal sepsis, therefore, is the condition of the mouth, which is liable to become the in-

cubator of an excess of microörganisms and those of a baneful nature.

The attention recently directed to pyorrhea alveolaris and other septic states as the possible cause of many complaints, whether of local or general distribution, such as gastric ulcer, appendicitis, colitis, and even pernicious anemia and osteoarthritis, has not yet resulted in any definite advance in knowledge beyond that directed to the remedy of the oral complaints themselves. The intestinal antiseptics of oldest standing and greatest trustworthiness are doubtless mercurial preparations, such as the finely divided metal in blue pill or gray powder. The mercurous and mercuric chlorides and iodides, again, have proved of inestimable value in such bacterial infections as cholera and infantile diarrhea, as well as in many less specifically defined disorders of the alimentary tract, both of an acute and subacute character. Next in order of general use, especially in the more chronic affections, would come the salts of bismuth, which are slower and more prolonged in action and involve greater dosage. Among the recent advances in the use of this series must be noted the strikingly successful treatment of that obstinate complaint, ulcerative colitis, by thrice repeated doses of from one to four drachms of the subnitrate for three or four days. Other preparations of bismuth, such as the salicylate, subgallate, naphthol and phenol bismuth, are particularly adapted, in doses of 30 grains or less, to the treatment of acute forms of gastric and intestinal catarrh, commonly met with in this country associated with an inflammatory state of the mucous membrane. Among the usual antiseptics which, owing to solubility, are specially efficacious for shorter periods and in the upper part of the alimentary tract may be mentioned phenol, sulphocarbolate of sodium, iodic acid, and iodate of calcium, in doses of from one to five grains. All are in fairly constant use in various forms of gastric disturbance, ulcer, or dilatation with fermentation. In febrile conditions and where the septic indications extend beyond the alimentary canal the various salicylic preparations are most serviceable, such as salicin, salol, salacetol, quinine salicylate, and the combination of salacetol with ichthoform given in cachet. Another group of intestinal antiseptics of slight solubility, and consequently maintaining their action throughout the intestine and for a prolonged period, are naphthalene and its derivatives, beta-naphthol and benzo-naphthol, which may be administered in doses of from five to ten grains in cachet or suspended in mucilage, their sustained effect being of especial value in typhoid or tuberculous ulceration.

When it is recalled that secondary infections play a more active part in the progress of these lesions than does the primary infection itself, the value of antiseptic agents, if effective, is obvious. In some at least of the instances in which acetozone has been continuously administered there has been practically no fever of hectic type such as usually characterizes the third and subsequent weeks of an attack of typhoid fever, and absence of ulcerative complications, and an early convalescence; but more extended experience is required before such a result can be regarded as constant.

THE TREATMENT OF GENERAL PARESIS BY MERCURY.

The *New York Medical Journal* of November 17, 1906, reminds us that inasmuch as the belief has become wide-spread that syphilis is one of the most important causes of general paresis, it has got to be more and more popular to make an attempt to delay the progress of the disease by mercurials. The ill success attendant upon the modes instituted in the earlier days of such treatment has been ascribed to insufficient doses, and the period of massive doses was a logical sequel, so that at the present time we find the use of enormous doses of mercury subcutaneously very often carried out, particularly in private practice.

Successful results have been reported, but they have been very few, and there have been not a few neurologists of note who have come to the conclusion that intense mercurialization is not only of little value,

but probably productive of much harm. Their warning voices were made distinctly audible at the recent International Medical Congress, held in Lisbon, where Raymond, Sicard, and Dupré were in accord in condemning the practice. Raymond has come to believe after an extensive trial that this method of treatment is dangerous, inasmuch as he has frequently observed a marked aggravation of all the symptoms following the beginning of the injections, in some instances leading to the extremely speedy death of the patient. He looks upon the good results which have been observed from time to time as having been achieved, not in general paresis, but in syphilitic meningoencephalitis, which is often confounded with the former disease.

Sicard brought out the interesting fact that following the treatment the character of the spinal fluid remained the same, and that the mercurial treatment of paresis was to be used only in the presence of a frank complicating lesion. Dupré saw in the instances of reported improvement either remissions, which in paresis, as is well known, are very frequent, or faulty diagnoses, perhaps even more frequent. The use of mercurials is unjustified and tends, he believes, to add to the initial paresis the results of mercurial intoxication, namely, stomatitis, enterocolitis, tremor, dysarthria, agitation, mental confusion, hallucinations, and subacute cachexia. The paretic, he thinks, does not bear the mercurial treatment as well as the tabetic.

The discussion is not closed by any means, especially in view of the important fact that under the best of circumstances and with the aids of the most refined psychiatric technique the diagnosis of conditions resembling paresis is fraught with inscrutable difficulty. Even the best of psychiatrists recognize their inability to be certain in some ten per cent of the cases at least, and it becomes of vital importance to determine if in our anxiety not to let the small, indistinguishable tenth go untreated we must subject the nine-tenths to a process which may do the patients harm. Until we are in a better position, however, to make our diagnosis more certain, and until it can be shown beyond peradventure that massive doses of mecurials can produce disastrous results, psychiatrists will probably continue to deem it advisable to try to save the few, especially when the many are already doomed.

THE PHYSIOLOGIC STANDARDIZATION OF DRUGS.

The scientific striving for exactness has led to two distinct tendencies in materia medica. The first consists in the substitution of the active principles isolated from a drug for the crude drug itself. This is undoubtedly the correct and scientific method, when the isolated principle really represents the full therapeutic value of the drug; but since this is by no means always the case, the method has its limitations.

The second method consists in the estimation of the strength of a crude or unstable drug by assay processes—*i.e.*, by the determination of the amount of some active constituent contained therein. Perhaps the most notable advance in the new U. S. Pharmacopœia consists in the increased requirements in this respect and in the greatly enlarged list of drugs and preparations for which an assay is directed. With the single exception of diphtheria antitoxin, these assays are all based on chemical methods, in accordance with the instruction of the pharmacopœial convention. It is well known, however, that there are many medicinal substances—including such important articles as digitalis, ergot, strophanthus, suprarenal gland, etc.—for which no satisfactory chemical assay has been elaborated, but the strength of which can be ascertained by appropriate experiments on animals.

These so-called physiological assay processes yield very satisfactory results with many drugs, and are usually not difficult to execute for those trained in the technique of animal experimentation. It is doubtless true that this training is not possessed by the pharmacist. The expense of these tests is also such that it would not be profitable

to apply them on a small scale, but they can be applied in the large manufacturing houses, or by the importers of crude drugs; and, indeed, a very large part of the credit of introducing these methods of standardization is due to the individual enterprise of American firms. Since each firm, however, uses its own methods and standards, a "standardized" product of one maker may be very different from that of another; indeed, in the absence of published standards, we have little more than the word of the manufacturer for his statement that his product has been assayed. To illustrate, we may again refer to the reports of Hunt and of Sollmann and Brown on suprarenal preparations. All the manufacturers claimed a uniform strength—*i.e.*, one part of the alkaloid in 1000 of solution. Two makers, X and Y, emphasize in their advertising that they assay each lot physiologically; if the same standards were used the products should be uniform, but as a matter of fact X is found 50 per cent stronger than Y. A third maker, Z, advertises that all his products are of the highest standard, and subjected to chemical and physiologic assay. Hence his suprarenal solution should be expected to come up to X, or at least Y. In fact, however, it is but a fifth as strong as X. We have no reason to believe that the manufacturer of X is honest and those of Y and Z intentionally dishonest. It is much more likely that they all standardize their products, but that they do so by different standards. And this must necessarily continue until official sanction is given to some single standard, and fairness to the manufacturer as well as to the public would seem to require this. It would be a mistake, we believe, to make these assays compulsory, in view of their impracticability for the retail pharmacist, but there could be no objection to introducing official methods and standards to which such preparations which are simply marked "physiologically assayed" must conform. This would give a definite meaning to a term which is now most indefinite. It would leave the manufacturer free to use other methods, should he so desire, but would compel him to state the fact. It may also be remarked that the warranty clause of the new pure food law would relieve the retail pharmacist from the responsibility for tests which he could not himself execute.

It is to be hoped that the next pharmacopœial convention will appreciate the importance of this subject, and direct the adoption into the United States Pharmacopœia of suitable standards (optional if need be) wherever practical and advisable. It will be a matter of ten years, however, before the next Pharmacopœia becomes official, and the matter is too pressing, at least as regards the suprarenal preparations, to be shelved in the meantime. The adjustment of these standards would require considerable original investigation, which should be started at once.—*Journal of the American Medical Association*, Nov. 17, 1906.

IS SULPHATE OF SODA A TRUE INTESTINAL ANTISEPTIC?

MABERLY, of Cape Colony, tells us in the *Lancet* of November 10, 1906, that the answer which the majority of the medical profession will give to this question is doubtless a very decided negative, and yet the author believes he should submit that there are grounds, clinical and possibly chemical, for thinking that an affirmative one affords a better explanation of the action of the drug under certain conditions. This at any rate is his contention, and whether he is correct or not in that contention there are at least sound reasons for considering that sulphate of soda has an action over and above that of a mere aperient and liver stimulant, one which points strongly in the direction of its being an intestinal antiseptic.

Some years ago Major W. J. Buchanan, I.M.S., published a paper in the *Indian Medical Gazette* (December, 1898) on the treatment of dysentery by means of magnesium sulphate, and later the records of a series of cases successfully treated with sodium sulphate. After reading those papers the author carefully carried out his treatment with one-drachm doses of sodium

sulphate given every six hours in a large number of cases of dysentery and obtained excellent results. In his paper on magnesium sulphate Major Buchanan stated that it was necessary to secure "free gentle purgation," but in the cases which the author treated with sodium sulphate he found that purgation was not necessarily produced, but rather appeared to be undesirable; in fact, in the most successful cases the motions rapidly became less frequent, lost their dysenteric character, and became feculent and of normal consistence in from two to four days, in spite of the continued exhibition of the drug. These results gave rise to the question whether the accepted "gentle purgation" theory was a correct explanation of the action of the drug. With the object of obtaining a solution to the question he commenced giving the drug in infantile diarrhea. In the first cases in which he tried it he found that it produced irritation, and although the character of the stools improved somewhat they did not decrease in frequency. Continued experimental administration, however, taught him that if he reduced the dose of the drug sufficiently to avoid any aperient action the motions in the majority of cases became less frequent, rapidly lost their objectionable odor and character, and became normal without other medicinal treatment. Another marked result was that the vomiting, which is so frequently a troublesome complication in these cases, ceased after one or two doses. (Milk diet was of course avoided as far as possible.)

Since obtaining these results he has gradually relied more and more on sulphate of soda in the treatment of all septic bowel complaints, and has become perfectly convinced that the drug given in proper doses is a true bowel antiseptic, independently of any aperient action, and further, that if we wish to obtain this antiseptic action we must avoid doses which have an aperient action. The doses which the author is in the habit of giving commence with about six grains for a baby under six months old, increasing up to one drachm in the case of the adult, given every six hours in one of the flavored waters, such as fennel. Children over six months old are very tolerant of the drug and seldom exhibit any aperient effects from doses of from 10 to 20 grains. Having arrived at these conclusions with regard to the action of the drug, he extended its use in his practice to typhoid fever, and was very interested to find that the results anticipated were obtained—namely, that the motions where loose and fetid became more normal in appearance and odor, with the natural result that the temperature was lowered and ran a more benign course.

There are cases in which the drug absolutely fails to produce any effect, and for which it is very difficult to find an explanation, unless it be that there is some obscure change in the intestinal mucous membrane which interferes with what may be considered the normal splitting up of the salts. The question now naturally arises, is it possible that a body such as sulphate of soda can have any antiseptic action, and if so to what is it due? There has always been an impression in the mind of the author that possibly the action may be due to the setting free of oxygen during the process of chemical decomposition of the drug in the intestines, and the interesting experiments published by Hay on the action of the saline cathartics in the *Journal of Anatomy and Physiology* in 1883-84 lend at any rate some color to such an argument, or rather enable one to build up a hypothesis which gives some support to that contention. In these experiments Hay showed that sodium sulphate produced copious intestinal secretion according to the amount of the dose and the strength of the solution. He showed further that the sulphate was split up in the intestines; the acid, being more easily absorbed than the base, disappeared partially from the small intestines, to return shortly afterward. In the meantime the base was gradually undergoing absorption and excretion by the kidneys, and never pursued the same peculiar course of absorption and reëxcretion as the acid. That portion of the salt which remained within the bowel unchanged caused the secretion of intestinal mucus and fluid, and consequent purgation, and not the portion absorbed into the blood.

THE TREATMENT OF GASTROSTAXIS, OR OOZING OF BLOOD FROM THE MUCOUS MEMBRANE OF THE STOMACH.

HALE WHITE in the *Lancet* of November 3, 1906, tells us that in his opinion while the hemorrhage is actually in progress and for a short time after it has ceased the patient should be kept quiet in bed, should not be allowed food, but may have some ice to suck. Probably transfusion of normal saline solution is rarely desirable, for it will raise the blood-pressure and so tend to increase the hemorrhage, but it is conceivable that in an extreme case it might be useful. Ergot should not be given in any form, as it will raise the blood-pressure by a general constriction of the arteries. It is doubtful if adrenalin is of value, for it is so diluted by the gastric contents, but still from five to ten minims of a 1-in-1000 solution may be given by the mouth in the hope that its local effect on the gastric vessels may lead to their constriction. It is not absorbed from the gastrointestinal mucous membrane, so that the harm it would do, if injected subcutaneously, by raising the blood-pressure will not be experienced. The author has often given perchloride of iron by the mouth for its local hemostatic effect on the stomach, and sometimes with apparent benefit. Half a drachm of the liquor ferri perchloridi with an equal amount of glycerin forms a concentrated solution which is swallowed easily. The only objection to it is that it appears sometimes to make the patient sick, but if it does not this dose may be repeated frequently. The liquor is better than the tincture because of the alcohol which this contains. Ten grains of calcium chloride may be given three times a day in the hope that it, by increasing the coagulability of the blood, may restrain the bleeding. Under treatment such as this it will nearly always stop.

If the physician is of opinion that the case is one of gastric oozing the patient may, after two, three, or four days from the cessation of the hemorrhage, be fed upon milk in fair quantities, say one and a half pints or two pints in twenty-four hours, small quantities being given every hour, and the liability to the formation of curds being prevented by peptonizing the milk, or better still, by adding two grains of sodium citrate to each ounce of milk. Then if no further bleeding occurs any plain, simple food, such as bread and milk, milk pudding, bread and butter, fish, or minced meat may be ordered, for these patients do well the sooner they take ordinary food. At the same time some preparation of iron, such as the tartrate of dialyzed iron, that does not upset the digestion, may be prescribed. Probably an enema will be needed.

The writer has treated many patients in this way lately, and the rapid improvement has been very striking. Instead of lingering in the hospital for weeks, as these patients used to when they were treated for a long while by rectal feeding or small quantities by the mouth, on the assumption that they had a gastric ulcer, many are, on this altered treatment, quite fit to leave the hospital and return to their work in three weeks at the most. Under the older plan they were treated in the way just mentioned for at least three weeks, and then it took them quite another three to recover from the effects of the starvation treatment. Dr. H. S. French, on looking through the medical reports at Guy's Hospital, states that of late years these cases have been put upon full diet earlier than they were, and that the further back we go in the records the longer the period after the hematemesis before full diet was allowed. He took at random eight cases not under the author's care, in every one of which solid food had been given a few days after the hematemesis had stopped, and they all recovered rapidly. Seven of these were young women; the eighth was a woman aged fifty years. The only objection that can be urged against this treatment is that, as it sometimes is difficult to distinguish these cases from those of genuine gastric ulcer, we may occasionally do harm by feeding a patient suffering from a genuine gastric ulcer too soon.

The author believes that with care these cases of oozing may in many instances be separated from those of genuine gastric ulcer. Then there is a large group of gastric

ulcers, namely, those in which adhesions outside the stomach have quite prevented the risk of perforation; in these no harm can follow giving food three or four days after the bleeding has stopped. In the next place all the patients under discussion came into the hospital for profuse hematemesis. Now it is a remarkable thing that it is quite exceptional to find that a patient who is admitted for a perforated gastric ulcer has recently had severe hematemesis. This opinion is confirmed by an examination of Moynihan's patients, for of twenty-one cases of perforating gastric and duodenal ulcers not a single one had had recent hematemesis, and such a striking circumstance as a profuse hematemesis preceding perforation by a few hours or a few days could hardly have escaped record; the nearest approach to it was the case of a man aged forty years, who vomited blood once, a week before perforation, but this man would hardly have been confused with the cases of gastric oozing, for they are rare in men and at forty years of age, and further, his hematemesis a week before could not have been very severe, for at the time of the perforation of his duodenal ulcer a barrel fell on him, so presumably he was at work. Therefore if a young woman has quite recently brought up a quantity of blood from the stomach, in the first place it is very likely she has not an ulcer at all, and in the next place it is extremely improbable that if she has it is on the verge of perforation.

The author asserts he has never seen or heard of perforation following upon the practice of putting these patients upon solid food early. It is said that the gastric juice is secreted during rectal feeding and that this hinders the healing of an ulcer, but even if there is no ulcer there is a strong reason against the old-fashioned plan of keeping these young women with hematemesis in bed for two or three weeks on rectal feeding, namely, that the most judiciously composed enemata are starvation diet, the patient only absorbing a third or a quarter of the number of calories of food she requires, even when resting in bed, and we cannot expect an ulcer to heal properly in a patient who is starving; indeed, the writer has known an ulcer perforate in a patient who was lying quietly in bed undergoing the routine treatment, so that, even if a genuine ulcer is present, it is probably best for the patient to have plenty of food by the mouth much earlier than is often allowed, for then the general health is maintained at as high a level as possible, and she stands the best chance that her ulcer will heal. During the short time rectal feeding is used dextrose should be the main constituent of the enema, as it is best absorbed by the rectum. That advised by Boyd and Robertson is very good, namely, the yolk of two eggs, 30 grammes of pure dextrose, 0.5 gramme of common salt, with pancreatized milk to make 300 cubic centimeters. But if four of these are given daily only 1200 calories are administered, and of these probably only 500 are absorbed. If for any reason food cannot for a long while be given by the mouth, sterilized olive oil may be injected under the skin night and morning. The author has successfully given half an ounce night and morning for a month to a boy ten years old—he had not a gastric ulcer; this is about 250 calories a day, and perhaps an adult could have more. But we see that with rectal and subcutaneous feeding combined we do not attain half the calories required.

ETHER-AIR ANESTHESIA OR THE DROP METHOD FOR THE ADMINISTRATION OF ETHER.

METZENBAUM in the *Journal of the American Medical Association* of November 17, 1906, advises the following plan for the giving of ether:

The ordinary Esmarch or chloroform mask, covered with six or eight layers of gauze, is held three or four inches above the patient's mouth and nose. The patient is directed to count slowly after the anesthetist, or to breathe in and out, or to blow the vapors away.

The ether contained in the ordinary chloroform bottle with dropper is allowed to drop on the mask somewhat more rapidly than if it were chloroform. The bottle is moved continuously, so that each drop falls

on a different spot on the mask, and is thus thoroughly mixed with air, so that when it is inhaled from the mask it enters the lungs as a partially warmed gas well diluted with air. The mask is lowered gradually; at the same time the drops of ether are increased until a very fine, continuous, steady stream is being spread over the entire mask. The mask is finally lowered until it almost touches the face.

The average patient will be able to count from 70 to 80, some only 40 or 50, while others may count 120 before unconsciousness begins. This will require from two to three minutes. At the end of a period of from five to seven minutes the patient relaxes and becomes sufficiently unconscious so that the final preparations for the operation may be begun. By the time these are completed the patient is in a condition of surgical anesthesia. To accomplish this from two to two and one-half ounces of ether have been administered, and from twelve to fifteen minutes have elapsed.

Once the patient is thoroughly anesthetized he is saturated, so to speak, and a lesser quantity of ether is given to keep him in this condition.

During an operation lasting from one to one and one-half hours from five to seven ounces of ether is administered. Soon after the anesthetic is discontinued the patient comes to, and frequently awakens before leaving the operating-room.

Some points of advantage of this open drop method as compared with the cone method in producing ether anesthesia are: By the open method the patient takes in almost as much fresh air as when awake. The loss of consciousness is due to the anesthetic effect of the ether, without the added partial asphyxiation. Therefore this method is one of purer anesthesia.

By this method the factors of carbonic acid gas poisoning are eliminated and need not be considered. The patient is so gradually introduced to the anesthetic that the change is a transitional one, during which time the mind, brain, heart, lungs, and circulatory apparatus quietly assume the new condition of anesthesia.

There is little, if any, choking, holding of breath, coughing, struggling, rigidity, or vomiting. The patient's eyes are bright, the skin is warm, the peripheral circulation about the face and head is almost a blush. The perspiration is warm.

Considered as a whole, the patient appears more as if asleep than when under any other anesthetic.

The dosage can be governed to a fine point and is within the control of the anesthetist. The patient can be kept just under, and there rarely exists a state of profound anesthesia.

A CASE OF ACTINOMYCOSIS OF THE CHEEK CURED BY IODIDE OF POTASSIUM.

KNOX in the *Lancet* of November 3, 1906, tells us that great difference of opinion exists as to the value of iodide of potassium in the treatment of actinomycosis. The important point is to use the drug at a time when there is a chance of eradicating the disease. Cases in the advanced stages of the disease may be benefited by its use, but the possibility of a cure is an extremely remote one. Whether the simple treatment of opening the abscess and draining it would be sufficient for a cure it is impossible to say, but in this case the fact remains that the patient did not begin to improve until she was thoroughly under the influence of the drug. The action of the iodide in this disease is unknown; possibly by promoting absorption of inflammatory products as they are formed it may check the spread of the disease. So far as known, it can have no specific action on the organism of actinomycosis. Iodides are largely used in the treatment of this disease in veterinary practice, and many cures have resulted.

The evidence in the above case strongly points to infection of the tissues by way of the faulty teeth. The question then arises, How is the parasite conveyed to the patient? The generally accepted theory is that the parasite is carried on straw or grain to the subject in one of many ways, and without doubt cases are on record where this has been so, but there are many cases in which the method of infection remains a mystery. In two other cases which the author has

had under his care the teeth had been faulty, and both patients had suffered from alveolar abscesses and glandular suppurations earlier in their lives. Cases are recorded where the disease has been communicated by direct inoculation from one individual to another. In another case of the author, an extensive skin lesion arose late in the history by the opening of an abscess connected with the pleura, illustrating a feature of the disease which is noteworthy, namely, the tendency of the disease to work from within outward. This tendency was particularly noticeable in the case which forms the subject of this paper. The abscess pointed outward and opened on the skin surface. Contrary to the usual method of treatment in abscesses about the mouth it was encouraged to open outward, as the danger of infection of the alimentary canal was recognized if the discharge found its way into the mouth and stomach.

WINTER UNDERCLOTHING FOR CHILDREN.

The *Archives of Pediatrics* for December, 1906, says of the words winter underclothing or winter "flannels" that they seem synonymous. For so many generations has it been the rule to change to woolen undergarments on, say, November 1, and to take them off on May 1, that any discussion of the topic may seem superfluous if not heretical.

Undoubtedly there are homes and climates in which such a practice is in strict accord with physiology and hygiene, but in our superheated houses and changeable climate this practice is a mistake for the great majority of children. This is evidenced by the increase in the number of colds at the time when the flannels are put on—about the time cold weather begins; also inversely by the comparative freedom from colds of those who wear the same light-weight undergarments the year around.

A few general principles in regard to clothing can be agreed upon. The body should be evenly covered. The clothing should be sufficient in its thickness or number of layers to insure bodily comfort without causing evident perspiration while not exercising. If a child is perspiring noticeably when quiet, either the room is too warm or the child is overheated. Overclothing, by exciting passive perspiration, lowers the bodily resistance and favors chilling by the slightest current of air, warm or cool.

In winter-time children spend the majority of the twenty-four hours indoors, where the temperature is fairly constant, somewhere between 65° and 68° F. Rational management of their clothing would demand that the undergarments be such as are suited to this temperature, which is that of late spring or early fall. Heavy undergarments tend to overheat the child, promote perspiration, make him irritable, and induce him to throw off his outer clothing and perhaps even open a window and sit down while still overheated. All these things encourage deep congestions and colds.

The most satisfactory as well as the reasonable plan, then, is to have only two weights of underclothing for children—the thinnest gauze or some thin-meshed fabric for summer, and a slightly heavier but rather open-woven fabric for the rest of the year. Changes of weather and of outdoor temperature can be met by a change of the outer garments and wraps.

As to the material for underclothing, the weight of opinion is changing to favor absorbent materials, either linen or cotton, instead of wool and silk; for these latter are not absorbent to anything like the same degree. Cotton gauze or a linen towel take up water much more quickly than silk or flannel. A silk handkerchief is useless compared to one of linen. The various forms of meshed underwear have certain advantages over silk and wool garments; they do not overheat the child; they do not promote passive perspiration; they have sufficient air spaces to be good non-conductors, and hence are "warm;" they permit constant free evaporation so that the skin does not remain moist from perspiration to favor chill.

Many children who formerly suffered every winter from repeated "colds" have been entirely cured by substituting air-

meshed garments for woolen underwear; and many whole families of children have abandoned silk or wool for linen or even cotton with the most satisfactory results as regards freedom from catching cold.

Of course, along with proper undergarments there must be rational management of the ventilation and the temperature of the living and sleeping rooms, and care in adapting the outer clothing to the weather.

Overheated rooms, overclothing of children, and dust—these three factors produce most of the so-called "colds" of winter and of the changeable seasons preceding and following it.

ANTITOXIN TREATMENT OF DIPHTHERIA.

The Commissioner of Health of the city of Chicago gives in the Department's Bulletin for October 13 some statistics with regard to the mortality from diphtheria before and after the introduction of the antitoxin treatment. The first case was treated with antitoxin on October 5, 1895, and statistics are given for the ten years 1886 to 1895 and 1896 to 1905. In the first period 10,019 deaths were reported from diphtheria, an average rate of 9.87 per 10,000 of population. During the second period there were 6446 deaths reported from diphtheria, an average rate of 3.94 per 10,000 of population. Had the previous average death-rate from diphtheria obtained during the second period of ten years there would have been 9701 more deaths from diphtheria in the city of Chicago than actually occurred. The Commissioner points out that this is really an understatement of the case. Prior to 1895 more than 90 (92.4) per cent of the deaths attributed to croup were, in fact, caused by diphtheria, as is shown by the figures of the last ten years, during which the difference between croup and diphtheria has been bacteriologically demonstrated. During the last ten years of more accurate diagnosis the death-rate from croup has been 0.30 per 10,000. During the preceding ten years, when diphtheria was so frequently called "croup," the croup rate was 4.12, or 13.7 times greater. The point is that, notwithstanding 92.4 per cent of the deaths formerly attributed to "croup" have been properly charged to diphtheria during the last ten years, the diphtheria death-rate has been decreased by 60 per cent, and the rate from both diphtheria and croup combined has decreased 70.2 per cent.—*British Medical Journal,* Nov. 3, 1906.

A PLEA FOR A MORE RATIONAL THERAPY IN TUBERCULOSIS.

POTTENGER makes this plea in the *Medical Record* of November 10, 1906, stating that since the important researches of Wright and Douglas upon the opsonic power of the blood have shown us that Buchner and Nuttall were right in ascribing an antibacterial action to the serum of the blood, we can see the wisdom of keeping areas which are infected with tubercle bacilli well bathed in serum. The action of the Finsen light is to cause an irritation, with an increased flow of blood to the part. Poultices to certain lupus patches have hastened their cure. Bier's method of treating tuberculous joints, as well as acute inflammations, by passive congestion, can be explained in this same way. In this way we can also explain the action of violet light upon pulmonary tuberculosis. By causing an active hyperemia it is aiding in bathing the parts with serum. Thus, all these measures which tend to divert more blood to the part involved are of value, and should be used in connection with tuberculin, for by so doing we are bathing the diseased areas with a blood which is rich in antibodies.

Another measure which is of value is the giving of raw meat or muscle juice. Experiments of Richet and Hericourt, also of Philip and Galbraith, show definitely that the employment of raw meat and raw meat juice causes a much greater retention of nitrogen than when the meat has been cooked. It is also the belief of these writers that there is something specific against the muscle waste, in the ingestion of the raw muscle.

In order to be most successful in the general therapy of tuberculosis, all distressing symptoms and complications should be

carefully managed. It is rarely necessary to give medicines for cough, night sweats, shortness of breath, loss of appetite, indigestion, or fever of the early or moderately early cases. The careful management of the patient, putting him to rest in the open air, together with the proper hydrotherapeutic measures, will usually relieve all these symptoms very quickly. Organic diseases of the stomach should receive most careful attention, for a good stomach is indispensable. The bowels should also be kept active. In more advanced cases, sometimes these distressing symptoms will have to be relieved by appropriate drugs.

Among the most distressing complications are dry pleurisy, which can be best relieved by strapping, and pleurisy with effusion, which should be removed if it causes embarrassment of the heart or respiration; tuberculous laryngitis, which will yield most readily to tuberculin, local cleanliness, rest, and wet packs; and tuberculosis of the bowel, which will require careful regulation of the diet and such harmless astringents as bismuth in large quantities, or lead and opium in intractable cases. The tuberculous patient is also subject to all other "ills that flesh is heir to," and when present they must be treated carefully.

THE TREATMENT OF ECLAMPSIA.

EVANS writes an important paper on this subject in the *British Medical Journal* of November 3, 1906. He favors the more conservative method of dealing with eclampsia, considering that mutilating operations for effecting delivery should be reserved for the more serious cases in which in spite of treatment the danger to mother or child is very great.

In the severe hepatic form, with profound coma, small, high tension pulse, and scanty, blood-stained urine, delivery should be accomplished as soon as possible, if necessary by surgical means, under deep anesthesia.

In the nephritic form general treatment may be relied upon in the interests of the child up to the thirty-sixth week, the mortality of eclamptic children being very high. In cases occurring after the thirty-sixth week the condition of the child should indicate the method of delivery to be adopted, except in those cases in which the mother's condition rapidly grows worse, as indicated by coma and the condition of the pulse tension.

Immediate operative treatment is indicated in the fulminant cases after the thirty-sixth week in the interests of the child, and in such cases occurring at an earlier period of pregnancy, in the interests of the mother.

One important point in the early treatment of the eclamptic condition is that absolute quiet of the patient must be secured. All manipulation of the patient for any purpose by the physician or nurse should be reduced to the minimum. Deep anesthesia should be secured before any obstetric examination, or to permit the administration of enemas, the passage of the stomach pump, etc.

In the large proportion of cases delivery can be effected by manual dilatation and the early application of forceps, or by version. In cases in which the cervix is long and the internal os not taken up, incision of the cervix is the most satisfactory method of effecting an entrance into the uterus. This can be accomplished according to the method of Bumm, by stripping up the bladder and cutting the cervix in the median line, or by Dührssen's method of cutting both the anterior and posterior lips of the cervix after pushing up the bladder and peritoneum. Statistics of both methods show but little higher mortality than the spontaneous delivery.

The use of the Bossi metallic dilator, though much has been claimed for it, is not to be recommended unless the cervix is at least fairly well taken up.

Hydrostatic dilators play no rôle in the treatment of eclampsia, in the author's opinion, as no artificial dilating force should be employed upon the os or cervix, except under the deepest anesthesia, which should not be prolonged.

Cæsarian section by the abdominal route is but rarely indicated in eclampsia, and then

only to save the child when the mother's condition is hopeless; the mortality of the operation in eclampsia, according to the statistics of Pollock and Boldt, being well over 50 per cent.

In the general treatment of eclampsia there is not a drug used nor a procedure employed on theoretical grounds, or as a result of experience, that has not as many enemies as friends.

Chloral and chloroform seem to be sheet-anchors in the treatment of eclampsia. The former should be used early and in large doses at intervals of four hours. Chloroform should be employed during all manipulations of the patient, but not during the convulsions, as it is then only productive of harm, oxygen inhalations being preferable.

Opium and morphine have been used considerably since revived by Veit; but while they act favorably upon the nervous system and reduce the arterial tension, they certainly tend to interfere with the process of elimination, prolong the coma, and act unfavorably upon the child when employed for any length of time.

Veratrum viride is employed as a specific by many, believing that it promotes elimination by reducing the arterial tension. It certainly reduces the tension, but at too great a cost, as it has been blamed for many cases of heart failure where it has been employed. It must be carefully used in conjunction with camphor or caffeine to get the best results.

Bleeding is advocated by many as relieving the heart and reducing the toxemia. Venesection is of value in plethoric cases, but should not be employed in asthenic cases.

Subcutaneous and intravenous salines are supposed to act favorably, by diluting the toxins and favoring elimination.

Mace and Pierra have demonstrated that injections of normal saline solution result in the volume of urine passed being diminished and becoming more concentrated, resulting in a lower freezing point from the greater molecular concentration. They demonstrate that in eclampsia there is a notable pathological increase in the quantity of sodium chloride in the blood. For these reasons they conclude that salines should not be employed, and have recommended pure water injections and a water diet during the first twenty-four hours.

Subcutaneous and intravenous salines are, according to many authors, contraindicated when the arterial tension is high, the edema marked, and the kidney function much impaired.

Liepmann claims to have demonstrated that the toxin of eclampsia is of an albuminous nature, and that it arises in the placenta, passes over into the maternal organism, and is there fixed, chiefly by the cells of the liver and of the brain. The organs principally affected by the toxin are the brain, liver, and kidneys.

On these grounds Liepmann makes a strong argument for immediate delivery after the first convulsion, preferring manual dilatation and the use of the forceps if possible, and the employment of the Bossi dilator or anterior hysterotomy if the cervix is not taken up. The subsidiary treatment, as he terms it, of eclampsia is directed according to which organ shows the greatest damage—the kidneys, the heart, or the brain.

When the urine is loaded with albumin, casts, and blood Liepmann employs saline transfusion, venesection, and administration of diuretin, digitalis, and camphor in the form of a powder three times daily. When the heart is weak and the pulse is small and irregular he employs caffeine and camphor subcutaneously in large doses. When the brain bears the brunt of the attack, as is manifested by coma, superficial breathing (due to paralysis of the respiratory centers), lung edema, and severe convulsions, he employs artificial respiration almost continuously with intervals of half an hour, in which he recommends stimulation by means of slapping the patient with towels dipped in cold water. The convulsions he treats with large doses of chloral given by the rectum.

Morphine he only uses in the later stages as the patient is recovering, to control the restlessness. He considers artificial respiration is important to overcome the paralysis of the respiratory centers, and that the

cold-water applications, acting reflexly through the vasomotor system on the edema of the lungs, are extremely valuable. He condemns warm packs, as their action tends to concentrate the toxin. In this he is supported by Bumm and others. He expresses the hope that a specific in the form of a serum may yet be forthcoming.

NEURASTHENIA.

In an article on this subject contributed to the *Medical Record* of November 10, 1906, RICHARDSON reminds us of the fact that there is no specific treatment in neurasthenia. Removal of the cause of worry, if possible, increased physical exercise, anything to interest the patient in some form of recreation, attention to the digestion, to the removal of the toxins from the system, and to the building up of the whole system in every possible way are desirable. Drugs, such as the bromides, the coal-tar derivatives, etc., should be used as little as possible on account of their effect upon the assimilation, the circulation, and the blood; the coal-tar preparations are particularly contraindicated on account of their destructive action on the red corpuscles. Bromides depress the heart and the vasomotor system, and should be used with caution. The difficulties of the physician are much increased by the intractability of the patient; he will refuse to leave his business, or perhaps he is unable to do so; he will not take his treatment regularly, will absent himself from the office for a week or two at a time, returning perhaps to scold the physician because he is not better, or perhaps he will seek a new doctor every month; it is no uncommon occurrence to have a patient produce a pocketful of prescriptions from different physicians, upon all of which he will dilate with a curious mixture of astuteness and perverted knowledge, which would be amusing if it were not tedious. The first duty of the physician is to gain the patient's confidence, and by firmness and sympathy hold him to his treatment, a task often of great difficulty, requiring much tact and patience.

THE USE OF OXYGEN IN ASPHYXIA NEONATORUM.

SPIVAK points out in the *Medical Record* of November 10, 1906, the value of oxygen in this state. He says that quite frequently it happens that while the obstetrician is busy in checking a postpartum hemorrhage, or in repairing a lacerated perineum, it falls to the lot of the attending nurse to look after the needs of the neonatus. In cases of asphyxia she even assumes the rôle of a goddess in actually "blowing into his nostrils the breath of life." Under the guidance of the attending physician many a nurse has resuscitated an apparently dead child by the various methods, mechanical, medicinal, etc., known to the modern practitioner.

At the maternity department of St. Luke's Hospital, Denver, in desperate cases of asphyxia neonatorum, a novel method has been adopted at the independent suggestion of two nurses, each unknown to the other. In one case, after having exhausted all his skill, resources, and strength, the attending physician concluded that the child was beyond human aid, and left the hospital in despair. The attending nurse cast her eye on the tank of oxygen which was standing in the corner of the room, and decided to make an experiment of her own, even at the risk of incurring the displeasure of her superior. She turned on a stream of oxygen into the nostrils of the baby, and was overawed to see the infant take its first breath. On the following day the attending physician was amazed to find a live baby in the arms of its mother.

The other nurse, in a similar case, timidly suggested to another attending physician, after he had "thrown up the sponge," to use a few whiffs of oxygen. He did not protest against her audacity to express an opinion in his august presence, but grasped at the opportunity of trying a novel procedure. He was repaid by having saved a human life, and by the gratitude which shone in the eyes of the parturient woman and nurse.

Having obtained the permission of the physicians and nurses to publish the above, and after consulting the recent text-books on obstetrics, the available current literature,

and several prominent obstetricians without finding any record of the use of oxygen in asphyxia neonatorum in this country, the author concluded that the subject deserved to be brought to the attention of the medical profession for the purpose of further research, discussion, and experiment.

ON THE COMPARATIVE THERAPEUTIC VALUE OF ORGANIC AND INORGANIC COMBINATIONS OF PHOSPHORUS.

Editorially the *Scottish Medical and Surgical Journal* for November, 1906, gives an interesting résumé of this subject.

Phosphorus exists in the body in one or other of two forms, inorganic and organic. The most important of the former is calcium phosphate, which forms a large part of the bones. The organic combinations are extremely complex bodies, and the most notable of them is lecithin, which is derived from phosphoric acid and glycerin. This substance, "along with its congeners cephaline and protagon, form essential constituents of the nervous system, and are so immediately concerned in its functional activity as to give rise to the dictum that without phosphorus there can be no thought." In tissues other than nervous we find organic phosphorus compounds in the form of nucleins and nucleoalbumins, especially in the muscles, the thymus and thyroid, the liver, the kidneys, and the spleen.

Seeing that phosphorus in one form or other is present in so many and in such important structures in the body, it is only natural that its therapeutic and dietetic uses have attracted a great deal of attention.

In an interesting paper Dr. Tunnicliffe gives a short résumé of the work of pharmacologists on this subject during the last thirty years.

The story, it must be said, is rather a perplexing and disconcerting one from the point of view of the practitioner, who looks to the pharmacologist for guidance as to the value of the drugs he uses; for the results of experiments have not seldom been quite conflicting.

In former times inorganic phosphates and hypophosphates enjoyed the unanimous confidence of the medical profession, and they were thought to be of great value in a large number of diseases, especially in childhood. Toward the end of the nineteenth century this belief was vigorously refuted. It was said that when they were given by the mouth they could afterward be recovered in undiminished quantities from the feces. Their use was accordingly condemned as altogether futile. On the other hand, lecithin was found by Danilewsky, in 1895, to have an extraordinarily favorable influence upon nutrition, even when given in the most minute doses. A little later the use of glycerophosphates was strongly recommended by Bulow and Pascales on the ground that the phosphorus in lecithin was present in this form. Their observations seemed to be strongly confirmed by those of Robin and by Sanson's experiments. The glycerophosphates came consequently largely into use, especially in France, as nervine tonics and stimulants.

The next class of organic phosphorus compounds to be advocated were those in which the phosphorus is combined with proteids, such as casein. Most observers have found those bodies to be very thoroughly absorbed.

In recent times the decisions of former authorities have been freely disputed by Ehrström, and also by Vosgien and Ceroline, who found that inorganic phosphates were absorbed from the alimentary canal and influenced nutrition quite as much as the glycerophosphates. Keller, too, found that sodium phosphate, when given to young babies, was largely absorbed, and its phosphorus appropriated by the tissues. He regards it as still unsettled whether organic combinations of phosphorus are absorbed any better than its inorganic salts. Rohrmann and his pupils, on the other hand, have continued to maintain the uselessness of inorganic phosphorus combinations.

In order to reach some more definite conclusions as to the best forms of phosphorus to administer, Dr. Tunnicliffe instituted a series of experiments to prove (1) whether in the healthy human child it is possible by increasing the phosphorus of the diet to increase the amount of phosphorus retained

in the body; (2) to compare the value as sources of phosphorus to the body of an inorganic and organic phosphorus compound; and (3) to observe the effect of an inorganic and an organic phosphorus compound upon proteid assimilation.

In Dr. Tunnicliffe's experiments he used as an organic compound the substance known as "sanatogen," which is made up of glycerophosphoric acid and pure casein. For an inorganic compound he gave calcium phosphate. The experiments were made on two young children.

The general conclusions arrived at are given as follows: (1) In the healthy child the addition of an organic phosphorus compound to the diet is followed by an increase in the amount of phosphorus assimilated by and retained in the body. (2) The addition of an organic phosphorus compound to the diet of children increases the amount of the nitrogen of the food assimilated. (3) The addition of calcium phosphate to the food did not increase the amount of phosphorus assimilated or retained by the child, nor did this compound exert any favorable influence upon the assimilation of the nitrogen of the food.

METHYLTHIONINE HYDROCHLORIDE IN INOPERABLE CANCER.

JACOBI contributes to the *Journal of the American Medical Association* of November 10, 1906, his views as to the value of this plan of treatment. He tells us he usually attends a new case of cancer once a month at least. Of these, 20 or 25 per cent are of the inoperable kind. Some that have already been operated on cannot be turned over to the surgeon again. Then will come methylene-blue treatment. The author has seen such cases in fairly great numbers; they certainly count up in the course of fourteen or fifteen years. He has had one woman under observation for eight or nine years. She weighed 91 pounds at first observation; she was jaundiced and is jaundiced yet, and still weighs 91 pounds. Once in six months she reports that she is perfectly well. She is still yellow, still has lumps. Ordinarily, she would have died seven or eight years ago.

Another patient is a business man under observation for six or seven years. At first he weighed 124 pounds, now he weighs 146. At first he was not able to attend to his business. For the last four or five years he has attended steadily to his business day in and day out. A large tumor in the epigastrium has dwindled away to about the size of a walnut. He is apparently well and weighs 25 pounds more. He certainly knows that he is sick, and accordingly he will complain, but he goes about from morning to night.

So the author has had a number of cases, but does not think, however, that he has ever cured a case. He has seen patients die during the treatment, but he has also seen them comparatively well, attending to business, living three, four, seven, and eight years, and perhaps finally submit to their disease.

In the last few months his attention has been directed to the large number of bodies that are favorably influenced by light, that have fluorescent qualities. It appears that methylene blue belongs to that class. He has commenced to expose his methylene-blue patients to the sunlight; whether it will be of any use cannot be determined. He has exposed them in the solarium or in bedrooms, kept them there undressed for hours and hours, as long as their household or business will permit them. It is not impossible, it is even probable, that light will do a great deal more in connection with methylene blue than methylene blue alone. He believes positively that it has rendered him a great deal of good service in at least 120 or 150 cases in the course of the last fifteen years. He has not gone before the profession with his results to any great extent. Only now and then has he mentioned them before societies, but never to such an extent as now. A number of physicians and surgeons in New York have had their attention drawn to the subject and are trying the remedy. It is well tolerated.

He gives the drug in pills, in small doses, 2 grains a day, and runs up slowly to 3, 4, and 6 grains a day. He has heard of bigger doses being given, but has never required larger ones. He thinks the 2 or 4 grains

should be made up in pills with a dose of three-fourths grain of extract of belladonna daily. He knows that the extract of belladonna will relieve the dysuria much better than nutmeg, which has been recommended for that purpose. When we give 6 grains there should be three-fourths of a grain of belladonna given through the day, because adults will not bear belladonna so well as children. They are easily overdosed, they get dry throats in much less time than children with comparatively large doses. It is easy to give it in that way. The author frequently combines it with arsenous acid (arsenic trioxide). The dose would be 1/40, 1/30 up to 1/20 of a grain of arsenous acid three times a day. It can be made into pills with belladonna and methylene blue, and there is no harm, when occasion requires, to give strychnine or extract of nux vomica in order to make up the pill, so the prescription would be 2 to 4 to 6 grains of methylene blue in four doses. It is best given after meals, one at bedtime, with perhaps 1/10 grain of strychnine and 1/10 grain or more of arsenous acid a day, with or without a vegetable purgative, if that be necessary.

Patients should be told at once that the urine will be blue from the very beginning, that it will stain the linen, and that the stains cannot be removed. Therefore the author advises his patients to have an old handkerchief handy and to wipe off the last trace of urine. Apart from that patients will not suffer any inconvenience. In his experience not one in twenty will complain of dysuria. The belladonna appears to act very well. He has recommended it in a number of cases operated on in order to prevent relapses. It is impossible for him to speak with mathematical certainty about the result of that, but he believes that relapses have been prevented. He would recommend it in every case of cancer of the uterus that has been operated on and when relapses must be feared. He believes he has seen less relapses since that has been done. Still, an actual, statistical proof of negative experience cannot be had.

Because he considered the matter of too great importance to be published prematurely, the author has not spoken of it extensively before. He wanted to be perfectly sure about his results. He wanted to have a sufficient number of cases to base his assertions on. He believes he has now waited long enough, and thinks that after fourteen or fifteen years one is entitled to speak of a subject that appears to be of great value. It has done a great deal of good in his practice. It is his belief that he has certainly restored a good many people to their work, and has kept a number of people alive two, three, six, and eight years longer than would have been their share.

SPINAL ANESTHESIA: ITS ADVANTAGES AND DISADVANTAGES.

In the *Edinburgh Medical Journal* for November, 1906, STRUTHERS says that after a perusal of the records it is difficult to agree with those who claim that spinal anesthesia is to be preferred to general anesthesia either in the interests of the patient or the operator. Serious complications attending its use are not infrequent; troublesome sequelæ are common. Its extent and duration cannot by any means known as yet be accurately controlled. Even in the cases in which it succeeds perfectly the great drawback to its use still remains, that the patient is fully conscious during the operation. Were it used only for minor operations such as those suitable for local anesthesia, this would be of little importance, but for major operations it is, to many, an insuperable objection to the use of spinal anesthesia. The mortality in the published records is little, if at all, below that attending the use of chloroform, and greater than that attending the use of ether, when these drugs are carefully administered. The unpleasant sequelæ, although possibly less frequent than those following general anesthesia, are quite as troublesome and distressing to the patient, if not more so. Unless means are discovered to materially lessen its dangers and to regulate more accurately its duration and extent, it seems doubtful whether spinal anesthesia will retain the popularity which it has in some quarters attained.

CINNAMON OIL IN THE TREATMENT OF INFLUENZA.

In the *Lancet* of November 3, 1906, Ross states that for nearly sixteen years he has employed cinnamon in various forms in treating this disease, but for many years now he has always used the oil of Ceylon cinnamon bark. There is another oil of cinnamon on the market, extracted, it is believed, from the leaves of the plant, which though rather cheaper should be avoided, and the oil of cinnamon bark only should be used. We all of us have heard only too often of bad cases of influenza where the unhappy patients have been confined to their beds or their rooms for a fortnight, three weeks, a month, or even longer. Such a long detention on the sick list cannot be a pleasant experience, and the writer asserts he is perfectly convinced that it ought never to occur. He employs these words advisedly. For he altogether declines to believe it can be ascribable only to a singular series of coincidences that now for nearly sixteen years, during which time he has invariably treated influenza with cinnamon, his patients have generally been perfectly fit to return to their avocations, whatever they may have been, within three or four days, and that in no single case has a patient suffering from influenza been on his hands for more than a week.

The treatment for which he suggests a fair trial, and which he invariably adopts, is abundantly simple, and is as follows: Let the influenza patient take 12 drops of cinnamon oil and repeat the dose in an hour; two hours after this second dose let the patient take 10 drops of the oil, and then let him go on taking 10 drops every two hours without intermission till the temperature falls to normal. After the temperature has fallen to normal, or possibly a little under, let the patient take 10 drops of the oil three times a day for a day or two. In every disease, probably, the sooner the patient is placed under treatment the better, and this is preeminently the case in influenza. And if a patient suffering from this disease is systematically treated with cinnamon oil in the manner above described within three or four hours from the onset of the disease it will probably be found that the temperature will have returned to normal within twelve hours; but if the patient is not put under treatment for a couple of days it will probably be at least twenty-four or thirty hours before the temperature becomes normal. After the temperature has fallen to normal the patient should remain in his room for at least twenty-four hours, and if possible should remain indoors for a further period of two or three days. But many cases that had been submitted early to treatment, cases of robust persons under forty years of age, and whose engagements were pressing, the author has permitted to return to their occupations after only twenty-four hours' rest, and so far without any untoward result. But he always advises that patients should remain indoors for two or three days if they possibly can. Especially should they be urged to do so in those cases in which the disease has been allowed to run for a day or two before being submitted to treatment. Each dose of cinnamon oil should be taken in half a wineglass or a wineglass of water to lessen its pungent taste.

It is hardly necessary to add, perhaps, that Ceylon cinnamon bark oil can be easily obtained from any respectable druggist in any town.

DISEASES OF THE KIDNEYS AS INDICATIONS FOR THE INTERRUPTION OF PREGNANCY.

In the *Interstate Medical Journal* for November, 1906, SCHWARZ expresses the belief that it is only when two or more reputable physicians are of the opinion that a pregnant woman is in immediate danger of dying, unless the pregnancy be interrupted, that the induction of her miscarriage becomes justifiable.

To decide in a given case whether or not a woman will die unless she be made to miscarry is a question so hard to answer, and one which involves such grave responsibility, that no individual physician should assume its burden.

The writer believes he has saved a few lives by interrupting pregnancy, but asserts that he positively knows that he has failed

to save others by trying to avoid the induction of a miscarriage.

Regarding his special task, namely, to define the indications for interrupting pregnancy which may arise from diseases of the kidneys, he states that, in twenty-seven years of special practice, kidney diseases have never called for the interruption of pregnancy except shortly before term, when the viability of the fetus was assured.

When speaking of kidney diseases in connection with pregnancy, we must distinguish between disorders that have existed before pregnancy ensued, and that are merely complicated by it, and between disorders of the kidneys which have originated during pregnancy.

Of the first class of cases of which chronic nephritis is the chief exponent, it may be said that as a rule they call for no interruption of pregnancy, especially when the dietetic and other general measures advocated in cases of albuminuria and toxemia of pregnancy are employed. It should be remembered, however, that a great number of these cases (statistics claim over 50 per cent) lead to the death of the fetus, which is not always followed by immediate spontaneous miscarriage, and that the mother must be given the benefit of any doubt about the fetus being alive when the advisability of inducing labor is under discussion.

It should likewise be remembered that in these cases of chronic nephritis the destruction of tissue is more rapid during pregnancy, and that in most cases of retinitis albuminurica in pregnant women detachment of the retina and atrophy of the optic nerve have rather quickly led to lasting blindness.

While these deplorable complications of an incurable disease may not justify the interruption of pregnancy, they certainly make it our duty to prevent conception in women afflicted with the severer forms of chronic kidney disease, and for this purpose it is not sufficient to warn the patient of her increased danger in the event of pregnancy, but we must instruct her to employ means which will enable her to perform her matrimonial duties without the chance of conceiving.

Of the second class of kidney disorders, including the toxic albuminuria of pregnancy with or without casts, it may be said that they usually yield to treatment, or that they can be kept within safe bounds.

When eclampsia or preëclamptic symptoms occur, with or without perverted kidney action, the fetus is almost without exception viable and in as much danger of dying as is the mother, and in these cases it is not a question of inducing labor by imitating the natural processes, but it is a question of rapidly removing the contents of the womb in an effort to save the lives of both mother and child.

In conclusion the author draws attention to the fact that when we speak of sacrifices in connection with the interruption of pregnancy, it is not always the fetus of whom the sacrifice is expected. When death approaches a pregnant woman after a lingering illness while her womb harbors a viable child, we know that during the agony the fetus is likely to die of asphyxia before the mother has expired, and under these circumstances it at times becomes our duty to advocate the induction of labor in an effort to save the life of the child.

SURGICAL TREATMENT OF TUBERCULOUS PERITONITIS.

DOUGLAS (*American Journal of the Medical Sciences*, October, 1906) notes that of 226 cases of peritoneal tuberculosis Borschke failed to find the primary focus in only two cases. The common source of infection in females is the genital tract, especially the tubes. Peritoneal involvement is greatest in extent near the seat of local infection. Infection is often present without producing special symptoms and with a natural tendency to recovery. Schroeder in his medical clinic obtained about 41 per cent of cures. In uncomplicated, subacute, or chronic cases the outlook is distinctly favorable. In very young children with a strong inherited predisposition and severe infection, the outlook is distinctly bad. The symptoms that affect the prognosis are continuous fever, rapid

wasting, persistent diarrhea, and recurring exacerbations. The complications which make prognosis unfavorable are pleurisy, localized suppurations, caseation of the mesenteric glands, and intestinal obstruction. Multiple sites of localization forecast a fatal ending. The subacute and chronic ascitic forms are the most amenable to operative treatment. In only exceptional instances of complications and for the relief of special conditions should operation be undertaken in the fibrous form. The ulcerous form offers an unfavorable outlook, yet even these cases may eventuate in cure. Active intervention is especially indicated when it appears that peritoneal tuberculosis is the only active manifestation. In the acute cases, those of violent onset, the expectant treatment should be preferred to operation.

The treatment of choice is laparotomy and complete removal of the exudate. Drainage is not desirable, nor is irrigation to be advocated. Efforts should not be made to detach adherent viscera further than to free encapsulated fluid or to relieve obstruction. Enlarged caseous mesenteric glands may be enucleated, although this is often a difficult task. It is of prime importance to remove foci of infection. This should invariably be done when the appendix or Fallopian tubes is the source of supply.

Douglas advocates the general conclusion that tuberculous peritonitis can be cured by laparotomy. The unsuccessful cases are those that have advanced disease in other organs. The probable rationale of cure is that the manipulation and exposure cause an afflux of normal serum which is antitoxic. There should be no hesitation in performing repeated operations if there is reaccumulation of fluid, especially if the first operation has been early in the progress of the disease. The immediate operative mortality is but slightly over three per cent.

Cheyne states that in 383 operations 53 per cent of the patients were well two years after operation. Rorsch presents statistics of 358 patients treated operatively, 70 per cent of whom were cured. In 26 cases of tuberculous peritonitis due to local infection Mayo notes that 25 recovered as the result of the operation, although several of these had had previous operation with recurrence. A complication to be greatly feared is the formation of a fecal fistula; it will not occur in the ascitic form unless drainage is employed; it is especially likely to follow in the ulcerous form. These fistulæ are extremely obstinate and difficult to close.

GONORRHEAL ARTHRITIS IN CHILDREN.

GIBNEY (*American Journal of Surgery*, November, 1906) quotes Holt to the effect that in one institution twenty-six cases of arthritis, single and multiple, depended upon the gonococcus developed in a period of eleven years. Kimball published a detailed history of eight of these cases, six terminating fatally, and two dying several weeks later of marasmus after subsidence of the joint disease. Kimball notes that one of the worst cases was in a child of eight years, and acquired at a fashionable school in the city. In children the diagnosis and differentiation is not difficult if the services of a bacteriologist be obtained. The affection is not common in children over four years of age, and it seems evident that a certain number of cases treated in past times for acute infectious arthritis of infancy are attributable to the gonococcus; indeed, Holt states: "A pyemic arthritis in a young infant I believe is much more frequently due to the gonococcus than to the streptococcus, or any other pyogenic organism."

As to the treatment of the different varieties, immobilization is applicable for one class, free incision for another. Milder cases are best treated by close bandages. A rabbit serum has apparently given good results. Of fifty-five cases of gonorrheal arthritis, thirty-four, or 69 per cent, were cured; of the remaining twenty-one cases, twelve improved and nine were unimproved. The antigonococcus serum was probably used on adults. In the case of infection free incision is advisable.

THE SERUM THERAPY OF TETANUS.

JACOBSON and PEASE (*Annals of Surgery*, September, 1906) observe as the result of their study that after tetanus is fully established serum therapy, however administered, promises but little as a curative agent. The intercerebral method, at first received with favor by the profession, has given results that are not particularly encouraging; nor does it commend itself as a means of reaching either the free toxin or that fixed to cells of the nervous system. Moreover, it is not devoid of danger, since one case is recorded which was first reported as cured, but which later died of cerebral abscess. The injection of tetanus antitoxin in the subdural space has been used extensively, but there is neither theoretical nor clinical reason for believing that this has attained any great measure of success. It seems to be a general consensus of opinion that intraneural injections can be of benefit only while tetanus is localized. As a prophylactic measure serum treatment deserves our fullest confidence, but as a therapeutic agent no method has yet been discovered whereby the serum could be administered so as to reach effectively the toxin not free in the blood. The authors append in sufficient detail a large number of cases grouped in accordance with the method of treatment adopted.

OPERATIVE TREATMENT OF IRREDUCIBLE LUXATION OF THE SEMILUNAR CARTILAGES OF THE KNEE-JOINT.

BELL (*British Medical Journal*, Nov. 10, 1906) refers to those cases of injured semilunar cartilages in which reduction is impossible and the patient is left with a slight flexion of the leg, with weakness and more or less pain on attempting to fully extend the limb. In the more severe cases the cartilage, in addition to being displaced, is generally found torn and crumpled in such a way that even direct manipulation cannot restore it to its normal position with any hope of keeping it there and securing a good functional result. Complete removal of the cartilage is the only remedy under such circumstances, and it has been abundantly demonstrated that this is possible without materially disabling the joint. Bell has found it difficult or even impossible to remove the whole cartilage, or even the whole of the torn portion, through the ordinary transverse or vertical incision. He has recently operated on four patients with irreducible luxation of the semilunar cartilage through a free anterior opening of the joint, by transpatellar incision. After removal of the cartilage the patella is sutured. Bell notes that it is very common to find the internal semilunar cartilage when torn curled up in the intercondyloid notch, and he notes that after operation the joint function is perfectly satisfactory, though flexion may be limited.

LEUCOPLASIA AND KRAUROSIS OF THE VULVA.

Leucoplasia, or whitish discoloration, and kraurosis, or atrophy of the mucous membrane, are so commonly associated that no attempt has been made to separate them, but JAYLE (*Presse Médicale*, No. 75, 1906) insists that they are independent and that a great deal of confusion has arisen from the fact that all such cases are called kraurosis in Germany and leucoplasia in France.

Leucoplasia is generally seen on the internal surface of the labia majora, the labia minora, clitoris, and vestibule. The disease affects the epidermis which is adherent, but does not cause atrophy nor retraction. Kraurosis is shown by atrophy of the same region; the labia minora and prepuce may disappear entirely, there may be stenosis of the vagina. It may be whitish, as in the kraurosis of Breisky, who first used this term, or reddish, as in the form described by Lawson Tait. Kraurosis and leucoplasia are frequently associated and may appear together, or either may appear first. Kraurosis shows the following varieties: (1) Leucoplasia, probably the most frequent form: (*a*) simple, varies as the one or other predominates; (*b*) syphilitic, to which some authors believe all cases belong. (2) In-

flammatory, the reddish form above mentioned. (3) Senile, not the usual senile atrophy, but a condition with complete disappearance of the labia minora, etc. (4) Kraurosis, postoperative, following removal of the ovaries, and related to the last. It is very likely that all cases depend on a loss of function of the ovaries. Cancer often develops on a kraurotic lesion. The treatment consists of scrupulous cleanliness and soothing washes. If the follicles are inflamed, they should be cauterized with strong permanganate of potash. If the condition demands more active measures, the entire patch may be excised.

INFECTED WOUNDS—TREATMENT WITH INJECTIONS OF OXYGEN GAS.

Very good results are reported by WOHLGEMUTH (*Therapeutische Monatshefte,* No. 9, 1906), who uses the following technique:

The pure gas is held under a pressure of 100 to 120 atmospheres, and passes through a cannula which is inserted as deep as possible into the wound, and the gas allowed to flow until all the secretion has been removed. A needle is then put in place of the cannula and subcutaneous injections made in the surrounding tissues. The stream must have force enough to cause a marked emphysema, and is kept up in each spot for half a minute. The wound is then dressed with 2- to 3-per-cent peroxide solution. The injections are made every day if necessary, to keep the wound clean. The distention causes some pain, which soon passes off. The method has been used in all sorts of infected wounds with good results. In some cases of purulent peritonitis with drainage the cannula was inserted through the abdominal wall, and a constant stream kept up, the gas bubbling out of the fistula. The results were excellent. The injections are of especial value in old inflammations with dusky discoloration of the tissues. The injection changes the color to bright red, and the stasis improves at once. The oxygen acts by increasing the resistance of the body cells.

PREGNANCY FOLLOWING TRANSPLANTATION OF AN OVARY.

A case more interesting from the standpoint of heredity than from that of surgery is reported by CRAMER (*Münchener medicinische Wochenschrift,* No. 39, 1906), who saw pregnancy follow the intraperitoneal implantation of another woman's ovaries.

Cramer had in his clinic, at the same time, a case of osteomalacia, the best treatment of which is removal of the ovaries, and a case of superinvolution, in which atrophy of the ovaries and premature menopause had followed childbirth. He operated on both women at the same time, removing both ovaries from the case of osteomalacia, and splitting them and sewing them, with the cortex out, one against the denuded posterior surface of the uterus, the other against the similarly split atrophic ovary of the puerperal case. The wounds healed promptly, and two weeks later the first menstruation appeared in the puerperal case. Three months later she became pregnant, but aborted early. (If our ideas of heredity are of any value, the child if it had lived would certainly have been the offspring of the other woman. The idea of giving birth to another woman's child is a very suggestive one.) In another similar case the operation was a complete failure, the ovaries evidently not taking root.

THE RESISTANCE OF THE PLEURA TO INFECTION.

The peritoneum shows a great resistance to infection, and NOETZEL (*Archiv für klinische Chirurgie,* Bd. lxxx, H. 3) has performed a number of experiments to determine why the resistance of the pleura is not equally great. Rabbits were used.

He found that if the bacteria were simply injected through the uninjured chest wall—that is, if there was no pneumothorax—there was no pleurisy, but if a large opening was made in the wall so that pneumothorax resulted, or if air was injected with the bacteria, purulent pleurisy always followed. This difference is due to lessened resistance of the pleura caused by the ab-

normal conditions, perhaps to interference with the lymph circulation. Pneumothorax without infection caused no disturbance. The animals without pneumothorax showed often suppuration of the puncture, but never pleurisy. This shows that the resistance of the pleura is naturally greater than that of the tissues of the chest wall. Another point was the influence of drainage as compared to closing the pleural cavity. He found that all animals with drainage died more rapidly than those without. It is true of men that they seem better after empyema operations if the wound is closed at once, and they do better if the pleura is closed, even if it has to be opened again. The bacteria appear in the blood within five minutes of the time they are injected into the pleural cavity, so their destruction is not due to absorption but to effusion of lymph, which has strong bactericidal powers. In all operations in which an infected pleura is opened, the lung should be sewed to the chest wall and the wound closed, as this gives the system the best chance to get rid of the pneumothorax, which is the worst complication of pleural infection.

CHOLELITHIASIS—PHYSICAL TREATMENT.

In a long article SCHURMAYER (*Therapeutische Monatshefte,* No. 10, 1906) considers in detail all the physical agencies which may be used for this condition, and lays especial stress on their use after operations for the removal of stones.

For the stomach trouble which generally accompanies the condition he uses electricity in the form of intragastric applications and externally as electrical massage, the electrode being attached to the masseur's wrist. In some cases it is necessary to wash out the stomach with a weak solution of nitrate of silver, or if this is irritating, with chloroform water. The constipation is also treated with electricity and massage. The tendency to congestion of the liver is best combated by breathing exercises, which should never be neglected in the treatment of these conditions. The patient is shown how to breathe so that the diaphragm will make the greatest excursion possible. The movement imparted to the liver in this way has more influence on its circulation than any other method of treatment. Other methods of physical therapeutics are taken up in great detail.

INTERNAL HEMORRHAGE—TREATMENT BY MILK ENEMAS.

Remarkable results are reported by SOLT (*Therapeutische Monatshefte,* No. 10, 1906) from the use of enemas of milk, warmed to body temperature, and best introduced by a piston syringe; the intermittent flow gives better results than a constant stream from a fountain syringe. He has stopped a large number of hemorrhages from the uterus, bladder, stomach, lungs, and in fact from every part of the body. In some cases more approved hemostatics had been used for hours without result, and the milk was immediately successful. At least a quart should be given at once, with nothing added but a little salt to make it absorb more rapidly. The enema should be repeated in an hour, even if there is no return of the hemorrhage. The usual local measures are employed at the same time. The method of its action is not certain, but milk contains a large number of substances which are recommended as hemostatics—iron, phosphoric acid, sulphuric and citric acids, but above all, lime salts. The enzymes and leucocytes also tend to cause an increase in the fibrin ferment. The milk loses its hemostatic power if it is given by the stomach.

SURGERY OF THE BLOOD-VESSELS.

The operations considered by LEJARS (*Presse Médicale,* No. 79, 1906) are ligation, suture, and anastomosis.

The only veins the ligation of which is almost certainly fatal are the portal and mesenteric, the superior vena cava, the inferior vena cava above the renal vessels, and the internal jugular near to the skull. If it is necessary to ligate the last vessel, it should be tied as low as possible, as this

gives the best chances for an anastomotic circulation. Single branches of the portal vein may be tied without great danger. The suture of wounds in the walls of veins is entirely dependent for its success on absolute asepsis, as the least infection will cause thrombosis, and block up the vessel as effectively as a ligature. The results of this operation have been very good in recent years, and it may soon be the operation of choice in all wounds of large veins. Even the vena cava and the lateral and transverse sinuses of the brain have been sutured successfully. The suture of transverse wounds of more than half the circumference of the vein leads to stricture, which prevents the vessel being of use, so such wounds are best treated by ligation. End-to-end anastomosis of vessels cut entirely across has been performed several times, but in man its only application at the present time is to recent traumatic arteriovenous aneurisms, in which the artery and vein may both, or either, be cut across above and below the aneurism, and the ends joined. This operation has been successful several times. The insertion of the portal vein into the vena cava, to relieve the congestion of hepatic cirrhosis, fails on account of the fatal effect of the intestinal poisons on the system. In some cases an attempt has been made to restore the circulation in limbs the subjects of arteriosclerosis with gangrene by suturing the main artery of the limb end to end into the vein, but all such attempts have failed on account of the resistance of the valves in the veins.

The ligature of veins to prevent escape of emboli in cases of thrombosis does not seem to have been very often performed, but ligation of the jugular and of the brain sinuses to prevent pyemia in cases of middle-ear disease is often done in France. Ligation of the uterine veins in cases of puerperal sepsis is not so well established, and as yet has been successful only in chronic cases with beginning chills. The indications are not very precise.

Suture is best done with a round needle and silk. If the wound is small, continuous; if large, in several parts. If the entire circumference is sutured, it is wise to first put three sutures at equal distances, and by drawing on these convert the vessel into a triangle. The sutures are passed entirely through the wall, about 1/12 inch from the edge of the wound.

In the discussion which followed most favored the use of ligatures for wounds, and Delaunay reported a case in which he ligated the vena cava above the renal vessels and the patient recovered.

POSTOPERATIVE OBSTRUCTION, DUE TO TRENDELENBURG POSTURE.

After reviewing the varieties of obstruction, and commenting on the frequency after ovariotomy for cysts, DAVID (*Tribune Médicale,* No. 36, 1906) states that the condition is often due to torsion of the bowel from faulty position, and that this is due to the free motion left to the bowel after reduction of intra-abdominal pressure, The elevated pelvis has the same effect in reducing pressure, and the bowels do not return to their normal place when the body is put in a horizontal position. Surgeons should therefore be very careful to bring the body back into this position and to see that the intestines are in proper position before closing the abdomen.

FRACTURES—OPERATIVE TREATMENT.

After detailing a large number of cases, RANZI (*Archiv für klinische Chirurgie,* Bd. lxxx, H. 4) draws the following conclusions:

Operation should be performed on fractures of the shaft of long bones only when reduction and retention are impossible, as when muscle intrudes between the broken ends. If union is delayed, however, it is better to operate soon, as delayed union induces atrophic changes in the muscles. If there is partial union in bad position, it is best to operate at once, as nothing is to be hoped for from other methods, and the operation is the more difficult the longer it is delayed. Primary operation is indicated in

fractures of the upper end of the humerus with dislocation of the shoulder, in most breaks involving the joint surface, and in fractures of the ends of long bones, in which a muscle attachment is broken off and cannot be brought into absolute apposition. This includes fracture of the olecranon, patella, os calcis, tuberosity of the tibia, condyles of the humerus, and others of the same kind.

DISEASES OF THE EYELIDS—TREATMENT BY SUCTION HYPEREMIA.

Styes and furuncles of the lids are treated by HOPPE (*Münchener medicinische Wochenschrift,* No. 40, 1906) with suction applied by means of a rubber ball and glass cups. The cup is as small as will include all the diseased area. The negative pressure is that made by a round ball 2 inches in diameter, or 30 mm. of mercury. The cup is left in position not more than one-half hour. If this pressure or time is exceeded, there may be hemorrhages. The results were prompt and favorable in all the cases in which the method was used.

CARCINOMA—TREATMENT BY ANESTHESIA.

Believing that the growth of tumors is dependent upon increased blood-supply, and that this is due to irritation of a reflex nature, SPIESS (*Münchener medicinische Wochenschrift,* No. 40, 1906) attempted to prevent the reflex irritation (and thereby the increased blood-supply and growth) by injection of local anesthetics into the tumors.

The first work was done on artificial, or rather transplanted, tumors in mice, and in all cases the injected animals did better than the controls. The most effective anesthetic was a modification of novocain, which is not on the market, but as this is very toxic it was difficult to give effective doses without poisoning the mice. Several tumors were cured entirely, although controls with the same tumor died rapidly. The effects were marked on slow-growing tumors only, perhaps on account of the small doses. The method was tried in a very few cases in man, but the results so far are not encouraging. The method is, however, to be thoroughly tested in the Institute for Cancer Research.

TUBERCULAR ADENITIS—TREATMENT BY X-RAYS.

The results of twelve cases are reported by BARJON (*Lyon Médicale,* No. 41, 1906), who found the principal effect on the general infiltration which so often accompanies scrofula, uniting the lymph glands in a solid mass. The glands become separated soon after beginning the applications, and later disappear. If there is any tendency to softening the rays hasten this, and the abscess soon requires to be opened. The rays continue to have a good effect on the suppurating tissues. No bad effects or tendency to cause metastasis were noted.

MAXILLARY SINUS EMPYEMA IN THE NEW-BORN.

This disease is not common among infants, according to WEISSMANN and FIOCRE (*Annales des Maladies de l'Oreille, du Larynx, du Nez et du Pharynx,* No. 9, 1906), who state that it is first shown by a swelling and redness of the suborbital region or the entire side of the face. Inside the mouth there is swelling of the gum or the roof of the mouth. Later there is exophthalmos and a fistula inside the mouth or on the cheek, water injected into which flows out of the nose, and in which a probe feels dead bone. Secretion may be excessive or slight, and may continue after cure.

Treatment must be operative, lavage being of no use. The sinus may be opened from the nose, mouth, or cheek, but in infants the first gives too little room, and the second involves the loss of the roots of all the permanent teeth, so only the external operation should be used in infants. If there is a fistula the incision should include it, otherwise it should extend from the root of the ascending ramus of the maxilla along the inner third of the floor of the orbit. The bony wall below the orbit is raised, the flap

being inside and above the infraorbital foramen, and the sinus then freely opened and all dead bone removed. When the sinus is clean a large counter-opening is made into the nasal cavity, and the external wound closed without drainage.

UTERINE CANCER AND PREGNANCY.

Vaginal hysterectomy or Cæsarian section is recommended by SCHEIB (*Prager medicinische Wochenschrift*, No. 39, 1906), who has used the method four times.

The womb should be removed as soon as the condition is discovered, not waiting until the child is viable. During pregnancy the operation of hysterectomy per vaginam is easier than at other times. In these cases there is always danger of infecting the peritoneum if the abdominal route is followed. It is probably easier to make a complete operation through the vagina than through the abdomen. The vaginal route is preferred by the author whenever it is possible.

CARCINOMA—EXPERIMENTAL PRODUCTION.

On the basis of experimental work, FISCHER (*Münchener medicinische Wochenschrift*, No. 42, 1906) decided that the growth of carcinomata into the connective tissues was due to the presence in the latter of a sort of chemotactic substance which exerted an attraction on the epithelial cells.

He tried by injection of various substances into the tissue below the epidermis to cause this to extend downward, and found that many irritants had such an effect. The effect, however, is not due to the irritation or to inflammation of the connective tissue, as some of the strongest irritants do not have any such effect. Olive oil injected immediately under the skin causes a thickening of this, but no growth resembling carcinoma. When, however, a solution of Soudan III or Scarlet R. in olive oil is injected under the skin, a growth of the epithelium results, which resembles squamous epithelioma in all respects, even to the formation of pearly bodies. The growth continues as long as there is any oil left in the tissues. No tumor has been produced which continued to grow after the coloring matter had disappeared, nor has a tumor been produced elsewhere than in the skin. The author discusses the theory of tumor formation at great length, deciding that carcinoma develops from a misplaced bit of epithelial tissue, attracted to growth by special chemotactic agents, which he terms "attraxines."

THE INDUCTION OF LABOR—BEST METHOD IN PRIVATE PRACTICE.

Of the various methods in use, some are too slow and others dangerous, so POLANO (*Münchener medicinische Wochenschrift*, No. 38, 1906) considers that only introduction of bougies, rupture of the fetal membranes, and metreurysis are worthy of consideration.

The introduction of bougies has the great disadvantage of often causing injury of the placenta. It is uncertain and slow, and brings more danger of infection than the other methods. The rupture of the membranes is the most conservative method, but may not act, and if it does is often very slow, three or four days intervening between it and labor. On the whole the last method, consisting in the introduction of a rubber bag in front of the fetus and its expansion with air, is the best, as it is not dangerous to either mother or child, is rapid, and easily executed. After strict cleansing of the patient and douching with lysol or other antiseptic, the cervix is dilated with metal dilators to the size of the finger. A metreurynter of 600 Cc. capacity is introduced, rolled up like a cigar, and at once inflated with a measured amount of fluid to its full capacity. When the cervix is sufficiently dilated, which may occur before the balloon is expelled, the woman is anesthetized and the child extracted, preferably by version. It is not wise to wait for natural expulsion, as this may not occur, and the cervix may contract again. The rapid changes in pressure to which the

fetus is subjected, if it is not extracted at once, may affect its heart action or even prove fatal to it. For these reasons the child should be extracted as soon as possible.

SYPHILITIC PARALYSIS OF THE FACIAL AND AUDITORY NERVES.

After a long study of this subject LANNOIS (*Annales des Maladies de l'Oreille, du Larynx, du Nez et du Pharynx*, No. 9, 1906) concludes as follows: (1) Syphilis may affect either the facial or auditory nerves separately, or both at the same time. (2) These paralyses may occur in any stage of the disease, even very early. (3) They are usually due to toxins, but may be caused by tertiary lesions. (4) The facial palsy usually passes away quickly, while the deafness is ordinarily permanent.

COMPOUND DISLOCATION OF THE WRIST.

The treatment of dislocations of the wrist in which the end of the bone protrudes is taken up by COUTEAUD (*Revue de Chirurgie*, No. 8, 1906), who states that the bones should be replaced without resection if this is possible. The least harmful resection is that of carpal bones adhering to the upper fragment, if the separation is intracarpal; otherwise resection is very likely to leave a stiff joint. Any carpal bones entirely free should be resected. Amputation should never be primary. Immobilization and antiseptic lavages must be continued a long time.

ACTINOMYCOSIS IN PREGNANCY.

A large number of cases have been collected by THEVENOT (*Revue de Chirurgie*, No. 9, 1906) in which actinomycosis which had remained latent throughout pregnancy suddenly took on a very rapid development as soon as this was ended. The curative action of iodine on the disease and the frequent disturbance of iodine metabolism in pregnancy and the puerperium may have something to do with this relation.

CARCINOMA—IS THERE AN IMMUNITY?

Why is autoinoculation of cancer in new localities of cancerous individuals so rare? asks STICKER (*Münchener medicinische Wochenschrift*, No. 39, 1906). When implantation of cancer in the lower animals is so easy, why do we so rarely see cancer of one lip infect the other, or epithelioma of the skin affect other regions?

He found on experiment that whereas it was easy to implant a cancer in a healthy mouse, it was impossible to implant one in a mouse already the subject of a similar tumor. This is not due to an antitoxin of any sort, as the protection ceases the instant the tumor is removed—that is, too soon for an antitoxin to disappear from the blood. Two or more tumors of the same sort may, however, be implanted at the same time, and all grow. Partial removal of an existing tumor does not remove the protection. It is also noteworthy that this protection ceases in the immediate vicinity of the tumor, and thus does not prevent its growth. The increased liability to implantation after removal of the entire tumor explains the frequency of carcinosis following radical operations, and emphasizes the care which we must take not to let the tumor come in contact with other parts during its removal, and especially the danger of causing general carcinosis of the peritoneum in removing cancers of the abdomen.

BENIGN GENITAL TUMORS—TREATMENT DURING PREGNANCY.

The treatment of ovarian cysts and of myoma is taken up by FRANQUE (*Prager medicinische Wochenschrift*, No. 40, 1906), who states that there is more danger of pregnancy being interrupted by the presence of an ovarian tumor than by an operation for its removal.

At least 17 per cent of the cases with cysts abort, and not more than 16 per cent of those operated on during pregnancy. The danger to the mother if the cyst is not removed is very great, torsion of the stalk being fairly common. The author reports

a number of cases in which the operation was successful, in spite of unfavorable circumstances. He believes that ovarian cysts should be removed during pregnancy whenever such are found, whether they have yet given rise to disturbance or not. The treatment of myomata should, on the contrary, be left until after the end of pregnancy, whenever possible. The only symptom which ordinarily demands operation is pain so severe as to suggest peritonitis, which indicates, as a rule, beginning necrosis of the tumor. This if neglected is likely to lead to fatal peritonitis. The proper treatment is myomectomy if this is possible, otherwise hysterectomy. Abortion should under no circumstances be performed, as the danger of infection is excessive. In most cases it is best not to operate until after labor.

TUBERCULAR ARTHRITIS — TECHNIQUE OF INTRA-ARTICULAR INJECTIONS.

The details of this method of treatment are given at length by CALOT (*Revue de Thérapeutique*, No. 17, 1906), who prefers the method to any other.

The method, which is only applicable to joints in which there is no secondary infection, consists in the injection of antiseptic liquids directly into the joint cavity. There is no danger of fistula resulting if no two injections are given at the same point and no needle larger than one-twelfth of an inch in diameter is used, and the needle is not left in too long. Great care must be used in regard to antisepsis; the skin must be thoroughly cleansed and the puncture dressed with as much care as a laparotomy wound. Two solutions are used, the first being employed except when it is desired to cause breaking down of exuberant tissue; it is a solution of 2 per cent of creosote and 5 per cent of iodoform in equal parts of olive oil and ether. The second, which is used to soften fungous masses, is made by heating together 2 parts of camphor with 1 of beta-naphthol until it melts and mixes, and adding 15 to 20 parts of glycerin. This mixture must be shaken well before using. These liquids are not irritant and there is no pain following the injections. There may be some malaise and fever, and if this rises to more than 102° the amount should be reduced. The only apparatus required is a syringe holding 15 Cc. and an aspirating syringe holding 10 Cc. If a larger aspirator than this is used there is some danger of causing hemorrhage into the synovia. The aspirating needle should have a lumen of 1/16 inch, and the injection needle is the smallest through which the fluids will flow. The syringe can be fitted to the aspirating needle by inserting the small needle into the larger one. In simple cases with neither effusion nor fungosities, the small needle is inserted and 5 Cc. of the first liquid injected. Dress the wound and repeat in six days. If there is bleeding through the needle, withdraw it and insert in another place, and if this bleeds also wait until the next day and try again. This treatment is repeated ten times and the joint immobilized for several weeks.

The joints with effusion are treated in the same manner, except that the aspirating needle is first inserted and the fluid drawn off by attaching the syringe. If there is more than 10 Cc. it must be repeated as often as necessary.

Hemorrhage is to be avoided, and therefore if the fluid withdrawn becomes blood-tinged, stop the aspiration and give the injection at once. For the same reason the joint should never be manipulated to force the fluid out. When no more fluid flows a few drops of water is injected to show that the needle is not stopped, and if no more flows the small needle is inserted in the large one and 10 Cc. injected as above. After dressing the puncture a bandage is applied. The injection is repeated in six days, but if the fluid collects before this time the joint may be aspirated, but no liquid injected. After twelve injections have been given the joint is very carefully dressed with a pressure bandage, and left for fifteen to twenty days. Great care must be taken to press on every part of the synovial cavity and leave no stagnant points. The dressing

is then renewed and the joint aspirated if necessary, but no fluid injected. The dressing is renewed and again left in place the same time, then again renewed, and so on for three months. This always cures if the method is properly carried out. If at any time the skin becomes sore in one place and threatens to give way, never open the joint. However bad the skin looks, it may always be saved by aspirating the joint at another place, and applying a firm compress. The joint must be carefully watched and aspirated as soon as the liquid collects, several times a day if necessary. Never incise a tubercular joint.

The treatment of joints full of granulations is conducted along the same lines if it is desired to sclerose these, but if they are so exuberant that it is necessary to soften them, the second liquid is used: 2 to 5 Cc. of this is injected every day until fluid collects in the joint, when it is treated as before. If after each injection a large effusion appears, reduce the amount injected to half. If the cavity is obliterated in part the first formula is generally best. If there is a fistula, the injections may be given through it, at least at first.

SEPARATION OF THE LOWER EPIPHYSIS OF THE RADIUS.

The interest of this affection, according to MARCILLE (*Tribune Médicale,* No. 37, 1906), is the danger of interference with the growth of the radius and consequent oblique deformity of the wrist.

The lesion is more common than was believed before the time of *x*-rays, and occurs in persons of twelve to fifteen years. It is almost always due to overextension of the wrist, and the epiphysis is carried backward. The signs are like those of fracture of the radius, but the protrusion of the dorsum of the wrist is less marked and the anterior depression more. The point of greatest tenderness is farther down. There may be very little displacement, and the deformity shows no tendency to recur after reduction, which is easily performed. Union is constant in about the same time as in fracture of the radius, the treatment being the same. In some cases in which the bone has not yet reached its full length, it may stop growing. As this would lead to marked angular deformity if the ulna continued to grow, it is best in such cases to remove the lower end of the ulna, thus preventing its further growth and keeping the arm straight.

HIP DISEASE—TREATMENT OF CONTRACTURE OF THE KNEE.

In neglected cases of tubercular coxitis we sometimes see the knee bent at a right angle, or even acute, when the hip is extended. LAUENSTEIN (*Centralblatt für Chirurgie,* No. 40, 1906) states that if a too forcible attempt to correct the deformity is made, the leg, acting as a lever, may pry off the lower epiphysis of the femur. If the contracture is firm, no attempt should be made to overcome it by force until the hip has been in extension for some time, when it will be found that correction is comparatively easy.

TRANSPLANTATION OF THE THYROID INTO THE SPLEEN.

Believing that the failures in transplanting the thyroid gland were due to the poor circulation of the surrounding tissues rather than to lack of vitality in the gland, PAYR (*Archiv für klinische Chirurgie,* lxxx, 3) sought to discover a tissue whose circulation was especially free, and finally selected the spleen, finding that pieces of the thyroid inserted in a pocket in this organ retained their vitality.

The blood circulation of the spleen is peculiar in regard to the presence of large blood spaces outside the ordinary vessels. Hemorrhage from the spleen is not to be feared if the incision is made along its border. The thyroid gland is sliced almost in two with a sharp knife and the halves turned inside out and sewed together, cortex in. A pocket of the same size is then made in the border of the exposed spleen, with a knife which is neither sharp nor dull, about like a brain autopsy knife. Into this pocket the gland is slipped and held by sutures, some of which pass through the gland;

others close the capsule. There is no bleeding, either at the time or later, if the pocket fits the gland. The wound should be covered with omentum. Autopsies showed that the blood-supply of the spleen was increased after implantation, and that the thyroid was well preserved and secreting colloid matter which was being carried off in the blood. Forty-eight dogs and cats were thyroidectomized and the gland implanted in the spleen. None of these died of lack of thyroid secretion, although some died early, from poor housing and care after the operation. A few were kept alive about a year and remained in good health. The gland was active, and it does not seem likely that it would have died later.

On the basis of these results Payr performed the same operation on a child six years old, the thyroid tissue being taken from the child's mother, whose thyroid was somewhat enlarged. The pyramidal process of the mother's thyroid was removed and immediately implanted in the child's spleen. The result has been perfectly satisfactory so far, only a year having elapsed since the operation, during which time it has made more progress than in the previous three while under full thyroid medication. No thyroid in any form has been administered since the operation.

LUMBAR ANESTHESIA—DISCUSSION.

The question of anesthesia by intradural injections is discussed by the Obstetrical Society of Leipzig (*Centralblatt für Chirurgie,* No. 41, 1906). Most of the speakers praised it, in spite of certain bad effects, which are not often seen. The danger lies in the paralysis of the respiratory and cardiac nerves. In four cases it was necessary to use artificial respiration, and in several others there was temporary loss of power in the muscles of the eye. If the anesthetic extends too high there may be great danger. On the whole the reports are favorable, as there are none of the disagreeable after-effects of ether. Vomiting occurred in some instances, and in a few there was no anesthesia and the operation had to be finished with ether.

EXPERIMENTAL INTERSTITIAL NEPHRITIS.

The hitherto impossible problem of producing this lesion experimentally has been solved by RAUTENBERG (*Mittheilung aus der Grenzgebiete,* xvi, 3), who ligated one ureter close to the bladder, and saw develop, in rabbits, a typical interstitial nephritis, with sclerotic changes in the arteries and hypertrophy of the left heart. The ligature was left in position from two to six weeks, and the ureter then implanted in the bladder. Similar operations on cats did not give as uniform results.

POSTOPERATIVE GASTRIC PARALYSIS.

BASTEDO (*Medical Record,* Nov. 10, 1906) reports three cases of acute gastric dilatation, each of which he considers typical of a form of the affection. The first, after curettage of both tubes and one ovary, requiring gas and ether anesthesia, exhibited for six hours the usual post-ether nausea and discomfort, then complained of severe epigastric pain, and shortly afterward vomited some yellowish fluid, with small amounts of mucus. Eight hours after operation the pain was very severe, requiring morphine for its relief. Vomiting, after being temporarily relieved, became recurrent and persistent; it was accompanied by great distention in the upper part of the abdomen. In this region there was extreme tenderness. This patient recovered under lavage and rectal feeding.

The second case had eaten excessively and imprudently, after which he was seized with a faint, dizzy sensation, accompanied by pain in the stomach which became so severe as to threaten a condition of collapse. It was associated with dyspnea and rapid, feeble pulse. There was marked bulging of the whole abdomen, so that it was tense, like a drum. Apomorphine produced at first belching and then an enormous vomitus, and brought about immediate relief.

The third case gave a history of belching of large quantities of gas. Gastric peristalsis was visible on inspection and gurgling was distinctly heard. There was no free hydro-

chloric acid and the stools gave occult blood. The stomach was dilated by carbon dioxide gas, in quantity greater than the stomach could hold, its escape into the intestine being prevented by a pyloric obstruction. This caused the patient extreme anguish and produced almost immediately a condition of collapse. The stomach-tube was immediately passed and gave instant relief.

PYLORIC STENOSIS IN INFANTS.

RAMSEY (*St. Paul Medical Journal*, November, 1906) states that from the available records of some fifty-five autopsies of cases of infantile pyloric stenosis, treated medically, there was in every instance a pyloric tumor unassociated with adhesions of any kind, a tumor varying in size, and likened to a walnut, to a hazelnut, or to a marble. It was hard, and in some cases creaked under the knife.

On microscopic examination it was noted that the enlargement was due to a hyperplasia of the circular muscular fibers, and once the longitudinal muscular fibers were found increased in size. Because of the circular constriction of the pylorus the mucous membrane in most instances was thrown into more or less marked longitudinal folds. These longitudinal folds of mucous membrane are of importance in connection with the treatment.

Even though a steel sound may be made to pass through the narrowed pylorus, this opening is not necessarily pervious to fluid. The obstruction to the fluid is due to the swollen and reduplicated mucous membrane. These folds are pressed aside by the steel sound. Usually secondary changes occur in the stomach in the direction of hypertrophy, most marked in the cases which die early, since they have not lived sufficiently long for dilatation to develop. The symptoms are vomiting, constipation, the presence of a tumor, progressive wasting, visible gastric peristalsis, and a dilated stomach. These symptoms are initiated by the vomiting or begin at the day of birth, and may be delayed according to the degree of the stenosis. In fifty-two cases the average time from birth at which vomiting appeared was seventeen days. This vomiting is forcible and expressive, and is uninfluenced by the quality of the food, though it certainly is by the quantity. It occurs almost immediately after feeding, and as a rule contains no bile. Exceptionally diarrhea is noted. The child is usually exceedingly hungry, and the tongue clean and moist.

The first case reported exhibited typical symptoms in the second week. Dr. Goodrich operated. The case terminated fatally in five days.

The second case also exhibited typical symptoms which began at the end of the second week of life. This child died before it could be gotten in shape for operation. The pyloric obstruction was so close that only a small-sized probe could be passed.

VARICOSE VEINS—MEDICAL TREATMENT.

Exercise and antifibrous treatment is the method praised by ROBIN (*Journal de Médecine*, No. 33, 1906), who uses also the usual local measures.

As regards hygiene, the most effective agent to stimulate the flow of blood in the veins is muscular action, so the patient should be made to exercise as much as possible, stopping if there is any pain. When not in motion, he should not stand. Internally, agents to stimulate the walls of the veins—tr. hamamelis, tr. viburnum prunif., tr. centaurea, ää pt. æq.; S.: gtt. vj each morning. Iodide of potash will prevent the sclerotic changes in the walls of the veins, and should be given in doses of about a grain twice a day. Locally, the limb should be wrapped every night in cloths wet with Goulard's extract, or in case this is refused, spread thinly with the following ointment: Potassium iodide, ʒj; ergotin, gr. xlv; ext. nucis vom., gr. xv; benzoinated lard, oz. 1. For the poorer classes the bandage of Velpeau is better than an elastic stocking. If a stocking is used it must rise well above the knee. Massage is advantageous and is most effective after a bath; all hard or tender points must be avoided in this rubbing, lest thrombosis and embolism occur.

REVIEWS.

A TEXT-BOOK OF PHARMACOLOGY. Together with Outlines for Laboratory Work. By Torald Sollmann, M.D. Second Edition, Thoroughly Revised and Enlarged. W. B. Saunders Company, Philadelphia, 1906. Price $4.00.

The first edition of this book appeared in September, 1901, and was at once recognized as being a distinct addition to the literature of the subject of which it treats. The present edition is much larger than the first, and has been entirely reset in type. It contains an immense amount of information which is not commonly found in text-books on Therapeutics and Materia Medica, giving facts in regard to Pharmacy, Prescription-writing, Toxicology and Laboratory Work, and Tables of Solubilities and Doses. Indeed, it is difficult to conceive how any book of its size could be written which would contain information covering so wide a range of that part of medicine which is directly or indirectly concerned with the administration of drugs. In order to save space a very large amount of the text is printed in small type, although much of the information which is given in this small type is quite as valuable as, if not more so than, some of that which is given in the regular text. The consideration of drugs is according to a classification not commonly found in other books upon this subject, and the book deals much more with the work of the pharmacologist than it does with the work of the practical therapeutist; thus, the therapeutics of so important a drug as opium covers but little more than two and a quarter pages, most of which is in large type.

Another instance of very brief consideration of important therapeutic substances may be found under "Arsenic," in which about half a page is devoted to the use of this important drug. The reference to its employment in chorea is, we think, unsatisfactory. While it is true that there is no scientific basis for its employment in this disease, it certainly has been proved empirically to be very useful.

To those who are engaged in pharmacological work the book possesses great interest because it gives us information concerning the influence of drugs upon different animals, care being taken to point out that the drug sometimes affects one animal in one way and another animal in another way.

In the consideration of the various antipyretics we think that scarcely enough attention is paid to the influence of these drugs upon the nervous control of heat production and dissipation, but we are glad to see that the author places in italics the important statement that these antipyretic drugs have no direct effect upon a fever except in so far as the temperature is concerned. On the other hand, those physicians who are best qualified to determine the value of cold bathing in fever will certainly take radical exception to the author's statement in concluding this subject that "the best general treatment of fever consists in a combination of antipyretics and graduated baths." To this we are strongly opposed, as we believe that it is quite erroneous if not dangerous in its effects.

A valuable conclusion, as reached by the author, and stated in a few words, is that alcohol can be employed as a food only when a sufficient supply of energy cannot be obtained from an ordinary diet. In other words, the author is of the opinion that in many conditions the administration of alcohol is of distinct therapeutic value, an opinion which many pharmacologists attempt to negative.

In other portions of the book very valuable and rather exhaustive discussions occur as to the means of absorbing, retaining, and excreting drugs, as, for example, in a discussion of the pharmacology of the iron preparations. Here, again, we are

glad to notice that the author, while admitting from a pharmacological standpoint that the use of iron does not always seem wise, nevertheless points out that clinically it produces good results. We can scarcely agree, however, with the statement that in the administration of iron the object is to give a maximum dose with a minimum of digestive disturbance. We believe, on the other hand, that excepting in certain conditions small doses of iron are very much more useful than large doses.

Toward the close of the book several pages are devoted to bibliographical references. The author is careful to state that he has not attempted to give a complete bibliography, which is impossible, but we think that he has failed, in a number of instances, to refer to the books and monographs which certainly are more important than some of those which he names. This criticism is, however, largely negatived by the introduction, further on in the book, of a still more exhaustive bibliography arranged under the authors' names.

Our readers will be interested to know that if they wish a book which will give them a vast amount of information in regard to the science of drugs, they will find it between the covers of this volume. If they want definite directions as to the best means of administering remedies or of combining them for administration, they will be disappointed. Again, if they want valuable information in regard to toxicology, they will find much, and if they are teachers and wish to outline a course in experimental pharmacology for their students, they will be again gratified by a perusal of this volume.

CONSERVATIVE GYNECOLOGY AND ELECTROTHERAPEUTICS. By G. Betton Massey, M.D. Fifth Edition, Illustrated. The F. A. Davis Company, Philadelphia, 1907. Price $4.00.

Dr. Massey has long been known by members of the medical profession as an enthusiastic electrotherapeutist, and one who has a firm belief in the value of electrotherapeutic measures in the treatment of diseases of women. He has for many years strongly advocated such a plan of treatment in many conditions which most of his gynecological brethren believe can only be relieved by operative treatment, but he at least possesses the courage of his convictions and claims that with increasing experience he has no reason to withdraw his confidence in the procedures which he originally followed. A number of the grave pathological changes in the genital organs of women which he thinks can be cured by these measures certainly do not seem suitable to electrotherapeutics. On the other hand, there are a considerable number of functional disorders in which much actual or mental relief can be given, and this book is one which provides the practitioner with perhaps the best summary of the subject which is published in this country. It is copiously illustrated, and the illustrations are of such a nature as very materially to aid in the employment of the measures which Dr. Massey advocates.

ORGANIC AND FUNCTIONAL NERVOUS DISEASES. By M. Allen Starr, M.D., Ph.D., LL.D., Sc.D. Second Edition, Thoroughly Revised. Illustrated. Lea Brothers & Co., Philadelphia, 1907.

When the first edition of Dr. Starr's book on Nervous Diseases appeared some years ago we called the attention of our readers to the fact that it was the production of a man of wide experience in clinical neurology and one who had done considerable investigation along these lines, and that it embodied to a very large extent the best of current neurological literature. The second edition, which the author has carefully revised, is a larger book, both in volume and in scope, than its predecessor. The first edition dealt only with organic nervous diseases, but the new edition is characterized not only by careful revision of the articles upon organic nervous diseases, but includes a section upon Functional Nervous Diseases as well. On the other hand, there are some diseases commonly considered in books on neurol-

ogy which do not find a place in this volume, as, for example, tetanus and hydrophobia, scleroderma, and angioneurotic edema. Dr. Starr excludes these articles from his book on the ground that they are generally considered in works on general medicine and do not belong to neurology, although he admits that most of our knowledge concerning them has been contributed by neurologists. A feature of the book which has always been of very great value are the excellent colored and black and white illustrations which are found in its pages, and which add not only to the beauty of the volume but also to the ease with which certain of the pathological and clinical descriptions can be understood.

To practitioners who began the practice of medicine twenty years ago the advances which have been made in the study of neurology are in many instances almost unknown. At that time there were only one or two large books upon this subject in the English language, and their contents when compared at the present time with the contents of this volume make them seem as if their text had been prepared in the early part of the last century. The present work is one which can be most cordially recommended as being one of the best single volume works on nervous diseases in the English language which our readers can obtain.

AN ATLAS AND TEXT-BOOK OF HUMAN ANATOMY. By Dr. Johannes Sobotta. Edited, with Additions, by J. Playfair McMurrich, A.M., M.D. In Two Volumes. Price $6.00 a Volume.

This Atlas will certainly prove a delight to students and of great value to practitioners. It is not an exhaustive one dealing with microscopical and other matters which are of little interest to practical men, but deals more intimately with regional anatomy, and the excellent full-page plates which are found in large numbers between the text are not only executed with great skill and accuracy, but are lettered in such a way as to make the study of anatomy easy and entertaining. The second volume, which deals with the anatomy of the viscera, including the heart, is, of course, the one which appeals to practitioners more than the first. We know of no atlas which can be recommended more cordially for the practical man than that now under notice.

A SYLLABUS OF LECTURES ON EMBRYOLOGY. By W. P. Manton, M.D. Third Edition, Illustrated. The F. A. Davis Company, Philadelphia, 1907. Price $1.25.

This small volume of 136 pages is especially designed for students in their first and second years at a medical school, and also for such practitioners as may wish to review their knowledge of this interesting subject. It is not, of course, an exhaustive work on embryology. On the contrary, it is a brief summary of modern views concerning this department of medical science, and in this sphere can be cordially recommended.

THE ELEMENTS OF THE SCIENCE OF NUTRITION. By Graham Lusk, Ph.D., M.A., F.R.S. (Edin.). The W. B. Saunders Company, Philadelphia, 1906. Price $2.50.

This octavo volume of 326 pages is designed "to review the scientific substratum upon which rests the knowledge of nutrition in health and disease." The author has endeavored to make no statement in the book for which he cannot give adequate proof that it is scientifically correct.

Most of the work which has been done along these lines has been carried out in Germany and very little in the United States. As Dr. Lusk is known far and wide as an original investigator and authority upon this important subject, what he has to say about it will be read with interest by those who are particularly interested in this branch of investigation, a branch which unfortunately is not as interesting to a general practitioner as it should be, perhaps because in the past it has seemed so great a distance between the results of these scientific investigations and practical medicine at the bedside, and also because in a large number of instances the scientific results have not in the end proved sufficiently correct to obtain the confidence

of practical medical men. At the present time, however, with greater refinement of knowledge, certain conclusions have been reached which are almost certain to remain generally accepted for many years to come, and it is chiefly these which Dr. Lusk has presented in a concrete form for our careful consideration.

A Text-book of Pathology. By Alfred Stengel, M.D. Copiously Illustrated. Fifth Edition, Thoroughly Revised. W. B. Saunders Company, Philadelphia, 1906.

The first edition of this very excellent book upon clinical pathology appeared in September, 1898, and at once obtained for itself a warm reception on the part of students and practitioners, being written by one who combines large pathological and clinical experience. It is not designed as a text-book on purely scientific pathology, but, as we have already intimated, as a handbook for the practitioner who wishes a clear conception of the pathological processes which it is his duty to diagnose and treat. The present edition has been thoroughly revised and brought up to date, and will undoubtedly continue to maintain the popularity which the book has achieved in earlier editions.

A Text-book upon Pathogenic Bacteria. By Joseph McFarland, M.D. New Fifth Edition. The W. B. Saunders Company, Philadelphia, 1906. Price $3.50.

When the first edition of Dr. McFarland's book upon Pathogenic Bacteria appeared, it at once took a place peculiar to itself, as it afforded medical men a complete yet not too diffuse description of our knowledge of this important subject. The fact that it has reached its fifth edition within comparatively a few years, the first edition appearing about ten years ago, indicates that although it deals with a subject which is of greater interest to the student and original investigator than to the general medical man, it nevertheless is prepared in such a way as to be of interest to the latter class. While it contains much in the way of laboratory technique which the untrained practitioner will not be able to utilize, on the other hand it gives him a conception of our present knowledge of pathogenic bacteria which he would be able to obtain only by wide reading and careful study extended over a long period of time.

Materia Medica for Nurses. By Emily A. M. Stoney. Third Edition, Thoroughly Revised. The W. B. Saunders Company, Philadelphia, 1906. Price $1.50.

In addition to describing ordinary matters in connection with Materia Medica for the use of nurses, this volume also contains an appendix which deals with poisons and their antidotes, with mineral waters, weights, measures, a dose-list, and a glossary of the terms used in materia medica and therapeutics. It is of course of no value to the medical man unless perchance he be a lecturer on this subject in a training school for nurses, and is looking for an excellent book to put in the hands of his pupils, who should be provided with enough information to render them competent assistants to the physician who may give them orders, and who, on the other hand, should not be taught so much and yet so little that they have sufficient confidence in themselves to attempt to prescribe without first appealing to a medical adviser.

Obstetrics for Nurses. By Joseph B. De Lee, A.M., M.D. Second Edition, Thoroughly Revised and Enlarged. The W. B. Saunders Company, Philadelphia, 1906. Price $2.50.

This copiously illustrated book is an excellent one for the purpose for which it was devised, and has won for itself a valued place amongst the text-books which are provided for nurses who are carrying on their education in well-equipped training schools.

Genito-urinary Diseases and Syphilis. By Henry H. Morton, M.D. Second Edition, Revised and Enlarged. F. A. Davis, Philadelphia, 1906.

The second edition of Morton's book, admirably illustrated and most carefully revised, will be welcomed by all who are familiar with this author's clear style of writing. The subject-matter is embraced

in less than 500 pages of large type, hence there is considerable condensation, but not at the expense of the omission of vitally important matter. Under directions for suture of the bladder after removal of calculus from the viscus which is not inflamed, the author states that the first row is so arranged as to bring the serous surfaces in contact, without allowing the sutures to appear upon the inside of the bladder, and the second row is placed above the first and holds the incision tightly together, preventing leakage. The incision for stone is usually made through a portion of the bladder not covered by serous membrane. Nor is this the technique which has given most success in the primary closure of these wounds.

It is noteworthy that Morton believes mercury should not be given until the secondary eruption appears, that he is a firm believer in colossal doses of iodide, and that his treatment stops at the end of three years in the absence of direct manifestations of the disease. There is a brief chapter upon impotence, sterility, and allied subjects, and an appendix containing the technique for the microscopical examination of urethral discharges, tubercle bacilli, spirochæta pallida. This work represents perhaps the most condensed summary of genito-urinary diseases to be found.

CORRESPONDENCE.

LONDON LETTER.

BY G. F. STILL, M.D., F.R.C.P.

Among the interesting events of the month, one which has brought together members of the profession from all parts of the United Kingdom is the conference on hospital abuse which was recently held at University College, London. Sir William Church, late president of the Royal College of Physicians, took the chair, and the meeting was well attended, for it is well recognized by those who are on the staffs of our London hospitals that the out-patient system has gradually grown into a gigantic abuse: indeed, it ought to be reckoned as one of the many well-intended but ill-advised charities which are slowly but surely pauperizing and demoralizing the middle classes as well as the lower classes in this country. Sir Henry Burdett, who is well known as one of our best-informed authorities on hospitals and hospital organization, stated that no less than 1 in 2 of our whole London population now obtain free medical treatment, whereas thirty years ago 1 in 4 received free treatment. With such a state of things it is no wonder that frequent letters appear in our medical journals complaining that the general practitioner is being ousted by the hospital out-patient department, and that even the daily papers have recently been devoting part of their columns to the discussion of this grievance. But there is another aspect of the subject which was touched upon by Dr. Heron: the hospital out-patient physician in London to-day has often to see a continuous stream of patients for three, four, or even five hours, and, he might have added, is in some hospitals expected to teach during this time also. Dr. Heron gave vent to an ejaculation of fervent pity for the patients who came to this exhausted adviser last. However, after all this and much more talk the conference ended in little more than a pious expression of opinion, and it seems likely that this problem of hospital abuse, which, as Sir William Church mentioned, was already being considered two hundred years ago at St. Bartholomew's Hospital, will continue to form subject-matter for conferences two hundred years hence.

At the Medical Society this month there was a discussion on hepatic inadequacy, which practically resolved itself into a consideration of the pathology and treatment

of gout. Sir Lauder Brunton pointed out that in otherwise healthy persons one or other organ may be functionally incapable of performing more than a limited amount of work: for instance, in one person the muscles were incapable of hard physical work, in another the stomach could deal only with the simplest of food, in another the kidneys could only remove an unusually limited amount of waste material. So with the liver there might be an unusually limited power of dealing with carbohydrates in one case, and of dealing with purins in another. Sir Dyce Duckworth doubted whether uric acid is the cause of gouty symptoms, but he was pleased that there should be no mention of microbes in connection with the etiology of gout. In this, however, he was not in accord with some subsequent speakers, who suggested that gout might be due to some toxin produced by bacteria in the intestine. One speaker pointed out that gout is sometimes an acquired disease, and can then be treated by diet, whereas in other cases it is inherited, and dieting is then quite ineffectual. Dr. Ewart regarded it as primarily a disturbance of function. It would have been somewhat of a shock to those who have made uric acid responsible for a large proportion of "the ills that flesh is heir to" to hear Dr. Luff say that uric acid could not be described as in any sense a poison; it is a comparatively harmless by-product of metabolism and has been converted into a fetish by recent fashion.

At the Pathological Society of London an evening was devoted entirely to some interesting observations by Dr. Chalmers Watson, who has recently been making experiments on rats, feeding them with meat only, and in this way producing softening and curving of bones, and certain changes in the thyroid gland. Dr. Spriggs pointed out that the changes in the bones might be due less to the fact that meat was given in excess than to the deficiency of lime salts involved in such a diet.

Considerable interest was aroused by a recent trial, in which two medical men were the defendants, and the plaintiff brought an action against them for negligence on the ground that they had treated a fracture of the surgical neck of the humerus as a dislocation; damages to the extent of £2000 were claimed. The defendants declared that there was dislocation as well as the fracture; the plaintiffs argued that *x*-rays ought to have been used to make the diagnosis certain, that reduction with the foot in the axilla was wrong, even if there had been a dislocation, and that the permanent limitation of movement was the result of the treatment, for skiagrams taken subsequently showed considerable malposition of the united fracture. Seldom is there such a distinguished list of witnesses as appeared in this on both sides. For the plaintiff Messrs. Pepper, William Rose, and Battle appeared, whilst the two defendants, both in practice at Cardiff, were supported by Mr. Anthony Bowlby, Sir Frederick Treves, Mr. Page, Mr. Edmund Owen, Sir Thomas Smith, Sir William Bennett, Mr. Lane, and Mr. Waterhouse. The jury were unable to agree until they had retired three times and deliberated for over three hours, when they gave their verdict against the defendants, and awarded the plaintiff £100. This decision has provoked much indignant criticism amongst the profession; and it is hoped that the judgment may yet be revoked, for notice of appeal has been given.

A lecture was given this month by Dr. H. Thursfield on congenital syphilis, in which he referred to the present position of the spirochæta pallida in the etiology of this disease. He said that the rejoicings over the supposed discovery of the cause of syphilis are premature, and that organisms quite indistinguishable from this spirochæta are to be found in a variety of other conditions, so that the diagnosis of syphilis cannot at present be confirmed by the finding of the spirochæta.

There certainly is a great tendency to jump at the latest announcement of causes as well as cures, and Mr. Edmund Owen, who is often startling and always interesting, did well to protest in his recent Bradshaw Lecture, delivered at the Royal College of Surgeons this month, on cancer and

its treatment by modern methods, against the ill-considered "cures" which are constantly appearing especially in the lay press.

A large windfall for hospitals and other charities has become available within the past few weeks by the death of Miss Lucy Cohen, who left £57,000 for distribution amongst various institutions, including several London hospitals, particularly the Hospital for Sick Children, Great Ormond Street, to which this lady some years ago gave two wards which are named after her.

"The Polyclinic," as it is usually called, held its annual dinner a few weeks ago, and Prof. Clifford Allbutt took the chair. This institution is a postgraduate college without any hospital attached. It owed its inception largely if not entirely to Mr. Jonathan Hutchinson, and has been greatly appreciated by practitioners residing within the area of "Greater London"—indeed, there are probably few lecture-rooms in London which could show so good a daily attendance as those of the Polyclinic.

The proposed Academy of Medical Sciences which is to be formed by the amalgamation of several of the chief medical societies of London seems likely to be an accomplished fact within the next year, in spite of considerable opposition and some gloomy prognoses; several of the best known societies have recently passed a final resolution agreeing to take part in the scheme.

Influenza has become widely prevalent in London during the past month, and its mortality has increased greatly in the past two weeks, partly perhaps owing to respiratory complications, for the cold has been intense, and London is wrapped in snow.

ANESTHESIA BY THE DROP METHOD.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: I am a recent subscriber to the THERAPEUTIC GAZETTE, and in the November number I read with much interest the article on "Ether Anesthesia by the Drop Method."

I use, and have used, the drop method the same as Dr. Kennedy, dropping the ether continually without intermission until the patient reaches surgical anesthesia, and I find that patients are more easily controlled and stand the ether much better than by the "instalment method." I anesthetized for Dr. John E. James and others of Philadelphia, and for Drs. Honan, Bagg, Carleton, and others in New York. Of the many inhalers on the market I prefer Allis's, covered with a towel and so pinned that the thumb of the left hand can be thrust in at the pinning point and so control the inhaler.

I differ with Dr. Kennedy on two points: First, to hold or splint the patient's jaw is not necessary until the relaxation sets in, because (*a*) it is unnecessary, and (*b*) because the patients, especially foreigners who do not understand our language and cannot be made to understand, resent it and are annoyed. This annoyance may unduly excite them, and they will take the ether badly. Secondly, in reference to folded gauze instead of an inhaler: while this is a clean method and has its advantages, yet an Allis inhaler is just as clean, can be controlled more easily, and does not allow the ether to evaporate as quickly as the gauze towel. Therefore it saves ether.

If for any reason it is necessary to "hurry" the case along I have found dropping the ether from a higher point seems to intensify the action in some unexplainable way. The hand or a hot towel placed over the ether cone will have the same effect.

The sighing respiration has always been to me a sure sign for more ether, although I never neglect the pupilary and conjunctival reflexes. If a case be started by the drop method, all violent restraints abandoned, and the patient kept at the midpoint pupil stage, fully 90 per cent of the cases, if they have had a 24-hour preparation, will recover from the effects of the ether without vomiting unless the patient be picked from the stretcher and dropped into the bed with a thud. With these few exceptions to Dr. Kennedy's article I say, Amen!

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